

preliminary self-study

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Preliminary Self-Study

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Abbreviations and Acronyms

AALHE	Association for the Assessment of Learning in Higher Education
ACE	American College of Epidemiology
AFR	Annual Faculty Review
ALC	Alumni Leadership Council
APDI	Associate Provost for Diversity and Inclusion
APHA	American Public Health Association
ASPPH	Association of Schools and Programs of Public Health
BA/MPH	Bachelor of Arts and Master of Public Health
BCYF	Boston Center for Youth and Families
BEDAC	Biostatistical and Epidemiology Data Analytic Center
BHSI	Boston Healthy Start Initiative
BPHC	Boston Public Health Commission
BS/MPH	Bachelor of Science and Master of Public Health
BU	Boston University
BUMC	Boston University Medical Campus
BUSPH	Boston University School of Public Health
CAHME	Commission on Accreditation of Healthcare Management Education
CAPR	University Committee on Academic Program Review
CEPH	Council on Education for Public Health
CETLI	Council on Educational Technology and Learning Innovation
CHOIR	Center for Healthcare Organization and Implementation Research
CLER	Center for Law, Ethics, and Human Rights
CLPH	Massachusetts Coalition for Local Public Health
CRC	Charles River Campus
CSHCN	Children with Special Healthcare Needs
CTL	Center for Teaching and Learning
DAB	Dean's Advisory Board
DDC	Doctoral Dissertation Committee
DPHC	Doctor of Public Health Committee
DrPH	Doctor of Public Health
EAB	Education Advisory Board
EES	Education Evaluation Subcommittee
FHS	Framingham Heart Study
GAPP	Graduate Academic Programs and Policies
GC	Governing Council
HAMPCAS	Healthcare Administration, Management & Policy Centralized Application Service
HBCU	Historically Black Colleges and Universities
HIS	Hispanic Serving Institutions
ILE	Integrative Learning Experience
IS&T	Information Services and Technology
IRB	Institutional Review Board
ISSO	International Students and Scholars Office
JD/MPH	Juris Doctor and Master of Public Health
LPHI	Local Public Health Institute
LSAC	Local State Advisory Committee

MA	Master of Arts
MAC	Multicultural Affairs Committee
MAHMAZ	Increasing Equitable Access to Safe Deliveries in Zambia
MAPHN	Massachusetts Association of Public Health Nurses
MAVERIC	Massachusetts Veterans Epidemiology Research and Information Center
MBA/MPH	Master of Business Administration and Master of Public Health
MD/MPH	Doctor of Medicine and Master of Public Health
MDPH	Massachusetts Department of Public Health
MHOA	Massachusetts Health Officers Association
MPH	Master of Public Health
MS	Master of Science
MS/MPH	Master of Science in Medical Sciences and Master of Public Health
MSW/MPH	Master of Social Work and Master of Public Health
NCES	National Center for Education Statistics
NCORE	National Conference on Race and Ethnicity in American Higher Education
NCURA	National Council of University Research Administrators
NEHA	National Environmental Health Association
NEPHTC	New England Public Health Training Center
OSP	Office of Sponsored Programs
PAFO	Post Award Financial Operations
PhD	Doctor of Philosophy
PHH	Partnership in Health and Housing
PHX	Population Health Exchange
PIF	Primary Instructional Faculty
RCR	Responsible Conduct of Research
RJTC	Racial Justice Talking Circle
SACNAS	Society for the Advancement of Chicanos/Hispanics and Native Americans in Science
SBIRT	Screening, Brief Intervention, Referral to Treatment for substance use
SEO	Student Employment Office
SER	Society for Epidemiology Research
SHIELD	School Health Initiative for Education and Leadership Development
SPH	School of Public Health
SPOC	Sponsored Programs Operations Committee
StAMP	Student Alumni Mentoring Program
TAR	Topic Approval Request
UIS	University Information System
ULG	University Leadership Group
URM	Under-represented Minorities
WISHES	Working to Improve Sexual Health Education in Schools

Introduction

- 1) Describe the institutional environment, which includes the following:
 - a) year institution was established and its type (e.g., private, public, land-grant, etc.)
 - b) number of schools and colleges at the institution and the number of degrees offered by the institution at each level (bachelor's, master's, doctoral and professional preparation degrees)
 - c) number of university faculty, staff and students
 - d) brief statement of distinguishing university facts and characteristics
 - e) names of all accrediting bodies (other than CEPH) to which the institution responds. The list must include the regional accreditor for the university as well as all specialized accreditors to which any school, college or other organizational unit at the university responds (list may be placed in the electronic resource file)
 - f) brief history and evolution of the school of public health (SPH) or public health program (PHP) and related organizational elements, if applicable (e.g., date founded, educational focus, other degrees offered, rationale for offering public health education in unit, etc.)
-

- a. **Boston University**, established in 1839, is a private institution.
- b. A full list of the bachelors, masters, and doctoral degrees offered at Boston University's 17 schools and colleges is included as **ERF Intro1.1**.
- c. As of fall 2016, Boston University employed 3,875 faculty, 6,117 staff, and had 33,617 enrolled students.¹
- d. Boston University is host to 17 liberal arts and professional schools and colleges offering more than 250 programs of study. BU faculty are committed to excellence in teaching and in path-breaking interdisciplinary research and scholarship. The university places a strong emphasis on collaborative research efforts of both faculty and students, with major initiatives in emerging areas such as neuroscience, systems biology, photonics, engineering biology, data science, urban health, global health and development and emerging infectious diseases, as well as research in communications and the humanities. With nearly \$400 million in research awards received annually, Boston University is the first private university since 1995 invited to join the prestigious Association of American Universities. The low 10-to-1 student/faculty ratio ensures that interactions will be personal, making many graduate and undergraduate research opportunities possible. While the BU community thrives in a city rich with entertainment, and cultural and professional opportunities, the University's reach is definitely global. With 33,000 students from all 50 states and 133 countries; more than 100 study abroad programs on 6 continents; and in over 400 research, service, and education programs on every continent in the world. Boston University's network of more than 321,000 alumni shape, serve, and improve the world.
- e. A full list of Boston University's accrediting bodies is included as **ERF Intro1.2**.
- f. **Boston University School of Public Health** (SPH) was established in 1976 as a program within the Department of Socio-Medical Sciences and Community Medicine with an initial class of 54 MPH students and 20 non-degree students. The program sought to enroll successful healthcare managers and practitioners in a practical, rather than theoretical, curriculum, pairing academicians and accomplished practitioners in the field in evening classes so that working professionals could attend. The first dean was Dr. Norman A. Scotch.

¹ Data will be updated for final self-study.

In 1977, 59 part-time students were admitted to the MPH program in two concentrations: Health Delivery Systems, and Health Research and Evaluation. Two new concentrations were added in 1978, Health Regulation and Planning, and Public Health Law.

On June 26, 1979, SPH became an official school of Boston University, matriculating 156 students in five MPH concentrations in five departments: Environmental Health, Health Care Systems, Public Health Law, Research and Evaluation, and Social and Behavioral Sciences. That same year the first graduation ceremony was held for 46 graduates.

In 1981, the school received its first full accreditation by the Council on Education for Public Health. It also expanded to include the departments of Epidemiology and Biostatistics, began accepting full time students, and enrolled its first international students. The International Health department was created the following year and renamed as the Global Health department in 2014. The Community Health Sciences department, a merger of Social and Behavioral Sciences and Maternal and Child Health, was established in 2009.

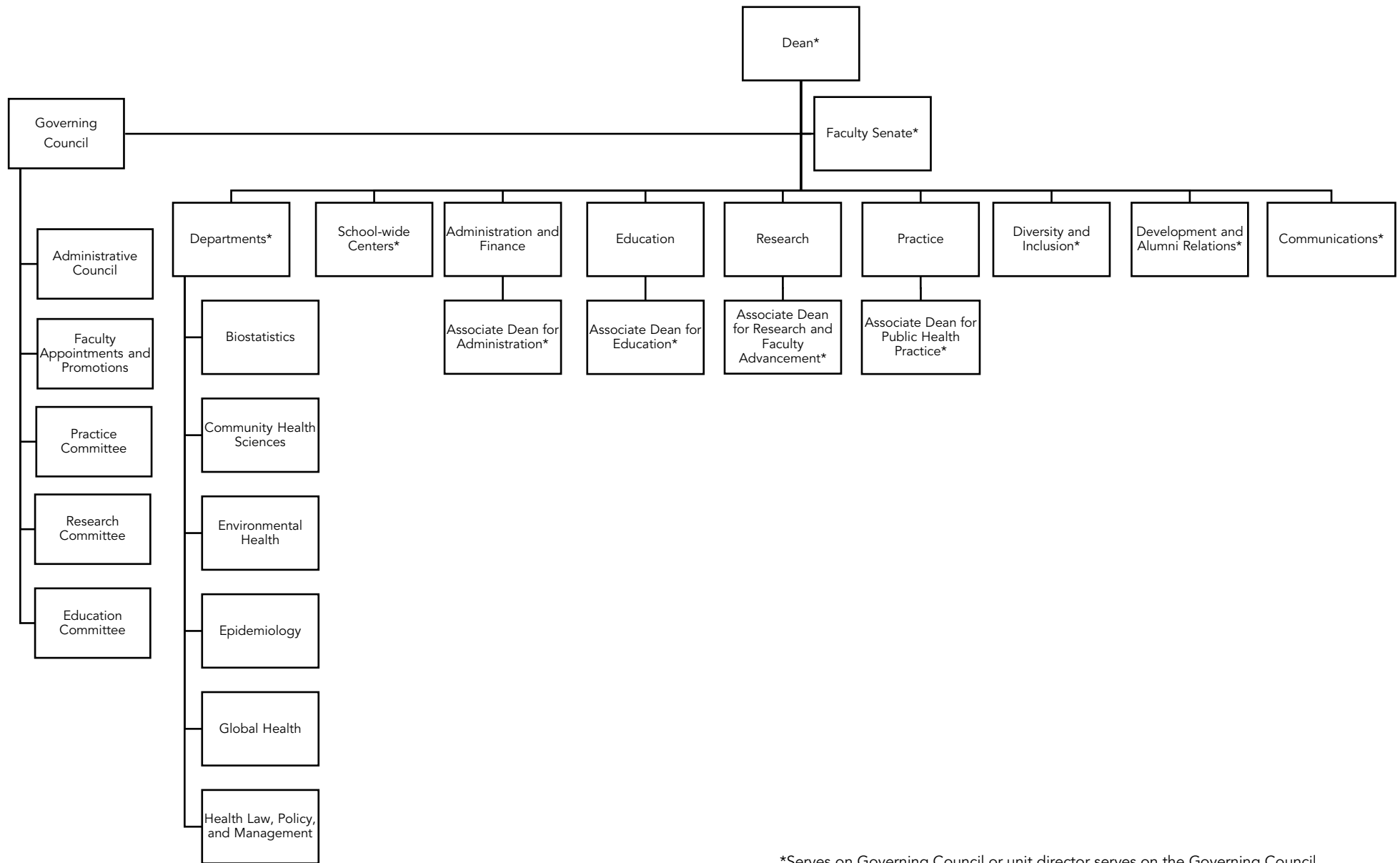
The school's first doctoral program, the Doctor of Science in Epidemiology, was established in 1984 and enrolled six students in that year. The school has established three additional doctoral programs in its history: a Doctor of Science in Environmental Health in 1988, a Doctor of Science in Health Services Research in 2003, and a Doctor of Public Health in 2004.

Dr. Robert Meenan assumed SPH's leadership in 1993. The school experienced significant growth during his 22 years as dean, relocated the school to its current location in the historic Talbot Building, and building the incoming class to 370 MPH students in 2012.

In 2015, the current dean Dr. Sandro Galea joined SPH. The school became a top 10 school of public health in the United States that same year. The school consolidated its departments with Health Law, Bioethics, and Human Rights and Health Policy and Management merging. This left the school with six departments: Biostatistics, Community Health Sciences, Environmental Health, Epidemiology, Global Health, and Health Law, Policy, and Management. The school launched its schoolwide Center for Law, Ethics, and Human Rights (CLER) the same year and consolidated its practice efforts under **The Activist Lab**. In 2015, the school launched its strategic thinking exercise that led to its current strategic plan in the same year. Informed by the strategic plan and broad consultation, in 2016, under the leadership of the Dean of Education Lisa Sullivan, the school introduced a new MPH program, featuring an integrated core curriculum, interdisciplinary certificates, and a focus on professional development and practical education throughout the curriculum. In that same year, the school launched its lifelong learning initiative **The Population Health Exchange** and its broad community-communication initiative **The Public Health Post**.

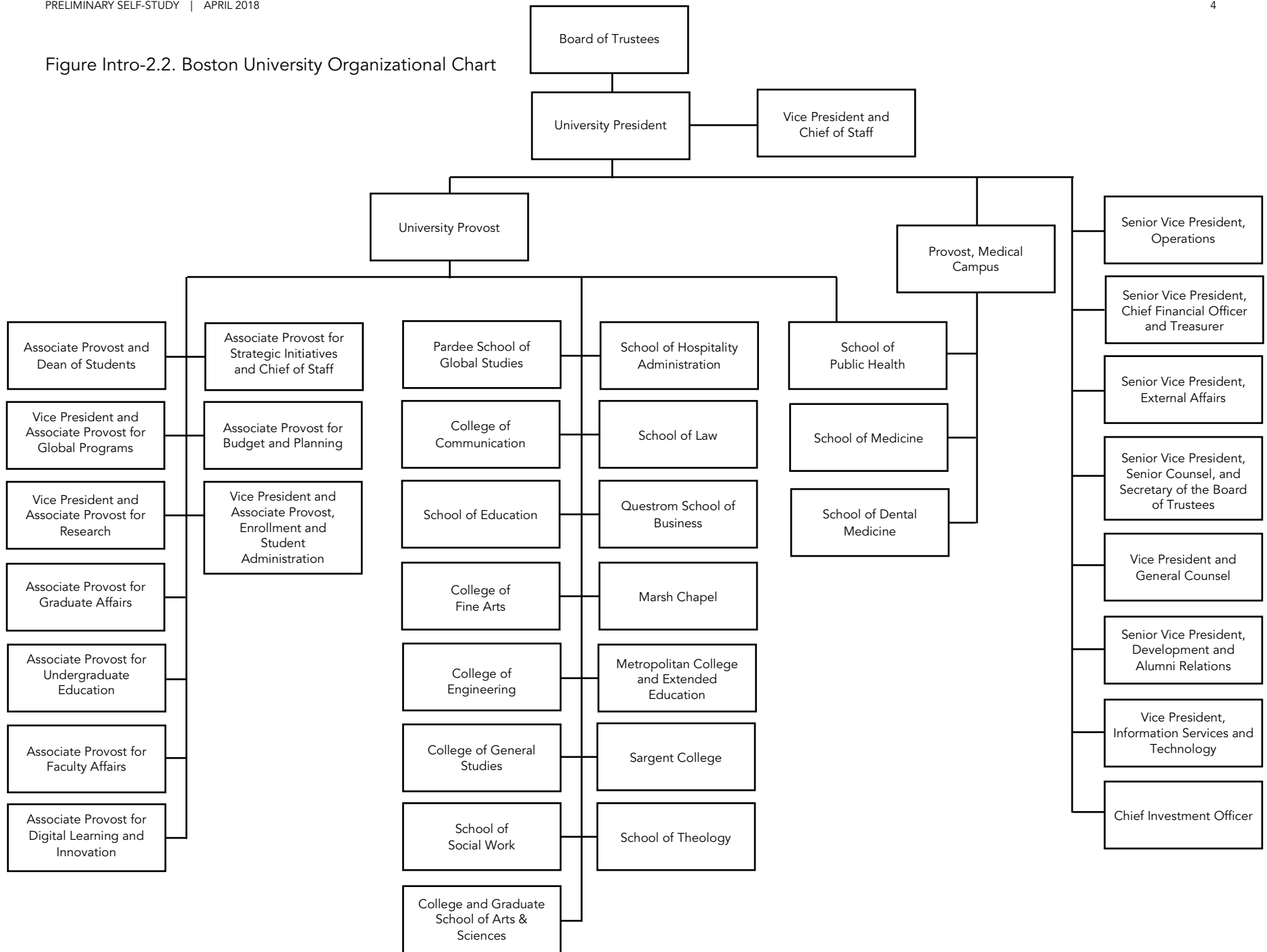
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- 2) Organizational charts that clearly depict the following related to the school:
- a) the school's internal organization, including the reporting lines to the dean/director
 - b) the relationship between the school and other academic units within the institution.
Organizational charts may include committee structure organization and reporting lines
 - c) the lines of authority from the school's leader to the institution's chief executive officer (president, chancellor, etc.), including intermediate levels (eg, reporting to the president through the provost)
-

Figure Intro-2.1. Boston University School of Public Health Organizational Chart



*Serves on Governing Council or unit director serves on the Governing Council.

Figure Intro-2.2. Boston University Organizational Chart



3) An instructional matrix presenting all of the school's degree programs and concentrations, including master's and doctoral degrees.

SPH confers four degrees: MPH, MS, DrPH, and PhD. SPH also collaborates with the Graduate School of Arts and Sciences on the MA and PhD in Biostatistics, which are considered part of the unit of accreditation.

The SPH instructional matrix is presented as Table Intro-3.1.

Table Intro-3.1. Instructional Matrix

Concentration	Academic Degrees	Professional Degrees	Categorized as public health*	Campus based	Executive	Distance based
Master's Degrees						
Community Assessment, Program Design, Implementation, and Evaluation		MPH	x	MPH		
Design and Conduct of Public Health Research		MPH	x	MPH		
Environmental Hazard Assessment		MPH	x	MPH		
Epidemiology and Biostatistics		MPH	x	MPH		
Health Communication and Promotion		MPH	x	MPH		
Healthcare Management		MPH	x	MPH		
Health Policy and Law		MPH	x	MPH		
Monitoring and Evaluation		MPH	x	MPH		
Program Management		MPH	x	MPH		
Public Health Practice		MPH	x	MPH	x	
Biostatistics	MA		x	MA		
Applied Biostatistics	MS		x	MS		
Environmental Health Data Analytics	MS		x	MS		
Epidemiology	MS		x	MS		
Health Services and Systems Research	MS		x	MS		
Public Health Nutrition	MS		x	MS		
Doctoral Degrees						
Leadership, Management, and Policy		DrPH	x	DrPH		
Biostatistics	PhD		x	PhD		
Epidemiology	PhD		x	PhD		
Environmental Health	PhD		x	PhD		
Health Services Research	PhD		x	PhD		

Non-Public Health Area	Existing concentration	Joint-specific concentration	Academic Degrees	Professional Degrees	Categorized as public health	Campus based	Executive	Distance based
Joint Degrees								
Art and Sciences	All MPH functional certificate specializations			BA/MPH	x	MPH		
Health Sciences	All MPH functional certificate specializations			BS/MPH	x	MPH		
Medicine	All MPH functional certificate specializations			MD/MPH	x	MPH		
Law	Health Policy and Law			JD/MPH	x	MPH		
Social Work	All MPH functional certificate specializations			MSW/MPH	x	MPH		
Medical Sciences	All MPH functional certificate specializations			MS/MPH	x	MPH		
Business	Healthcare Management			MBA/MPH	x	MPH		

4) Enrollment data for all of the school's degree programs, including master's and doctoral degrees.

Table Intro-4.1. Enrollment by degree program

Degree	Current Enrollment ²
Master's	1006
MPH	803
Community Assessment, Program Design, Implementation, and Evaluation	67
Design and Conduct of Public Health Research	17
Environmental Hazard Assessment	14.5
Epidemiology and Biostatistics	202
Health Communication and Promotion	38.5
Health Policy and Law	75.5
Healthcare Management	85
Monitoring and Evaluation	22
Program Management	45.5
Interdisciplinary Training in Public Health ³	149
Legacy MPH concentrations* ⁴	87
BA/MPH	24
Healthcare Management	1
Monitoring and Evaluation	1
Interdisciplinary Training in Public Health	10
Legacy MPH concentrations*	12
BS/MPH	48
Community Assessment, Program Design, Implementation, and Evaluation	1.5
Epidemiology and Biostatistics	0.5
Health Policy and Law	1
Healthcare Management	1
Interdisciplinary Training in Public Health	24
Legacy MPH concentrations*	20
JD/MPH	7
Health Policy and Law	5
Legacy MPH concentrations*	2
MBA/MPH	19
Epidemiology and Biostatistics	3
Health Policy and Law	8
Monitoring and Evaluation	1
Interdisciplinary Training in Public Health	7
MD/MPH	3
Community Assessment, Program Design, Implementation, and Evaluation	1
Epidemiology and Biostatistics	1
Interdisciplinary Training in Public Health	1

² Students who are in two functional certificates/concentrations are counted as 0.5 in each functional certificate/concentration. Data will be updated for the final self-study.

³ Interdisciplinary Training in Public Health is the designation for students who have not chosen a functional certificate yet.

⁴ The self-study reflects the school's current degree programs; legacy MPH degrees are included here to reflect the school's total student enrollment and are marked with an asterisk. These students will reach their maximum time to graduation in 2020.

Degree	Current Enrollment ²
MS/MPH	14
Epidemiology and Biostatistics	3
Health Policy and Law	2
Healthcare Management	3
Interdisciplinary Training in Public Health	4
Legacy MPH concentrations*	2
MSW/MPH	26
Community Assessment, Program Design, Implementation, and Evaluation	2
Epidemiology and Biostatistics	1
Interdisciplinary Training in Public Health	12
Legacy MPH concentrations*	11
MA	9
Biostatistics	9
MS	53
Applied Biostatistics	19
Environmental Health Data Analytics	2
Health Services and Systems Research	10
Public Health Nutrition	3
Epidemiology	19
Doctoral	142
DrPH	38
Leadership, Management, & Policy	33
Legacy DrPH concentrations ⁵	5
PhD	104
Health Services Research	21
Biostatistics	41
Environmental Health	17
Epidemiology	25

⁵ The self-study reflects the school's current degree programs; DrPH legacy degrees are included here to reflect the school's total student enrollment. These students will reach their maximum time to graduation in 2019.

A1. Organization and Administrative Processes

The school demonstrates effective administrative processes that are sufficient to affirm its ability to fulfill its mission and goals and to conform to the conditions for accreditation.

The school establishes appropriate decision-making structures for all significant functions and designates appropriate committees or individuals for decision making and implementation.

School faculty have formal opportunities for input in decisions affecting the following:

- degree requirements
- curriculum design
- student assessment policies and processes
- admissions policies and/or decisions
- faculty recruitment and promotion
- research and service activities

The school ensures that faculty (including full-time and part-time faculty) regularly interact with their colleagues and are engaged in ways that benefit the instructional program (eg, participating in instructional workshops, engaging in school-specific curriculum development and oversight).

1) List the school's standing and significant ad hoc committees. For each, indicate the formula for membership (e.g., two appointed faculty members from each concentration) and list the current members. (self-study document)

The Governing Council (GC) is the senior governance body for the school. SPH has five standing committees, all of which report to the GC, and 10 administrative and operations groups that report to the standing committees. A brief description of each committee follows; the committee membership list is available as [ERF A1.1.1](#).

COMMITTEE	CHAIR	COMPOSITION	CHARGE
Governing Council (GC)	Dean	All associate deans, department chairs, designated school-wide center directors, the elected chair and a second designated representative of the Faculty Senate, a SPH Student Senate member, and other members as designated in the school by-laws	The GC has approval authority for planning, budgeting, space, faculty appointments and promotions, school-wide policy setting, and other strategic activities. It advises the Dean on senior administrative appointments.

STANDING COMMITTEES			
COMMITTEE	CHAIR	COMPOSITION	CHARGE
Administrative Council	Associate Dean for Administration and Finance	Senior staff from all departments and centers at the school	Discusses changes in policies or procedures at both the school and university level; communicates important current school-wide information on SPH best practices; and engages in discussions on a variety of business practices with area heads across the university.
Appointments and Promotions Committee	Designated by the Dean	At least one faculty member from each department	Responsible for the review and approval of faculty appointments and promotions, as set forth in the guidelines for faculty appointments and promotions (ERF E5.6.1)
Education Committee	Associate Dean for Education	One faculty member from each department, at least one student representative, the Assistant Dean for Education, the Assistant Dean of Public Health Practice, the Registrar, and the Director of Graduate Programs	Oversees all of the school's educational programs. It makes recommendations on educational policies to the GC, reviews proposals for new educational programs and new courses, oversees the student evaluation process, and regularly reviews the curricula of each program. It also selects faculty to receive teaching awards.
Practice Committee	Associate Dean for Practice	Faculty and staff from the Activist Lab, faculty representatives from each department, and at least three student representatives	The steering committee for practice initiatives, community relations and outreach, and student and staff service activities at the school. It is responsible for strengthening the school's networks with public health agencies, establishing new affiliations with external organizations, engaging the school with the global public health practice community, and promoting practice activities within the school.
Research Committee	Associate Dean for Research and Faculty Development	Faculty members from each department and at least one student	Makes recommendations to GC regarding administrative policies to enhance the research environment and the research productivity of the faculty. The committee is also responsible for evaluating internal proposals for pilot grant and transition fund support.

ADVISORY AND OPERATIONS COMMITTEES			
COMMITTEE	CHAIR	COMPOSITION	CHARGE
Admissions Committee	Associate Dean for Education	At least one full-time faculty member from each department	Reviews and discusses individual applications to the school and makes recommendations for admission to the admissions office. The committee determines criteria for admitting students, which include establishing satisfactory test scores and prior academic performance.
Alumni Leadership Council	Assistant Dean of Development and Alumni Relations	Alumni who are interested in the success of Boston University and the advancement of SPH's mission	Provides advice and support to the Assistant Dean of Development and Alumni Relations. The council also contributes to the strategic planning of the school, establishing goals and evaluating the curriculum.
Committee on Community Development	Director of People Services	SPH staff from across the school	Development promotes professional development and community building among staff.
Dean's Advisory Board	Dean	Alumni and individuals interested in the success of Boston University and the advancement of SPH's mission	Provides advice and support to the Dean, including strategic planning, development activities, and curriculum assessment. The board offers significant insight from a multidisciplinary cohort internal and external of the field of public health.
Doctoral Programs Committee	Associate Dean for Education	Faculty directors of each PhD program, faculty representatives from departments without PhD programs, the Assistant Dean for DrPH Education, the Director of Graduate Programs, the Director of Admissions, and the Registrar	Oversees marketing, admissions, recruitment, retention, curriculum issues, satisfactory student progress and other aspects to ensure that doctoral programs meet compliance and quality standards.
Doctor of Public Health (DrPH) Committee	Assistant Dean for DrPH Education	Faculty representatives from across the school, the Assistant Director of the DrPH Program	Implements all DrPH program guidelines is the final authority in approving or disapproving a student's DrPH studies. The committee also delegates authority to other persons (such as the dissertation committee for a student's doctoral dissertation) for specific functions.
Education Advisory Board	Associate Dean for Education	Alumni, community partners, practicum supervisors, employers, education evaluation sub-committee chair, and representatives from the Education Office	Provides oversight and recommendations concerning the strategic direction and growth of formal and informal educational, professional development, and lifelong learning programs to ensure that the school offers the best educational programs possible.

ADVISORY AND OPERATIONS COMMITTEES			
COMMITTEE	CHAIR	COMPOSITION	CHARGE
Education Evaluation Subcommittee	Faculty member with evaluation expertise	Faculty representing a variety of programs and disciplines, representatives from the Education Office, and an external consultant	Reports to the Education Committee and provides oversight for evaluating the school's educational programs, including degrees and certificate programs. The subcommittee collaborates with and where necessary provides leadership to existing SPH committees as well as university-wide assessment initiatives.
Enrollment Committee	Director of Admissions	Members from the admissions, communications, and education offices	Sets the strategic direction for all SPH enrollment and admissions marketing efforts with a focus on graduate education. It reviews the content, timing, and sequence of communications with applicants; oversees efforts to enhance student diversity; reviews the suite of marketing materials across all media channels; evaluates the substance and quality of prospective and accepted student days; reviews proposals for strategic partnerships; and sets targets for upcoming admissions cycles.
Faculty Development Committee	Director of Faculty Development	One faculty member from each department	Responsible for building an effective faculty development program. The committee works closely with the department chairs, associate deans, and the Faculty Senate to design, monitor, and evaluate faculty development programs and activities in education, research, practice, and management. These activities are integrated with faculty development efforts on the Medical Campus and at the university.
MS Programs Committee	Associate Dean of Education	All MS program directors, key staff from the admissions and education offices	Considers all matters related to the recruitment, enrollment and retention of students. It develops and implements a strategic plan for marketing and advertising programs and develops the policies, requirements and standards for admission. The committee maintains annual records of applications, acceptances and matriculations as well as allocate scholarship awards to accepted students. The committee collects annual outcomes data to ensure satisfactory progress and ensures that all students meet graduate requirements.

ADVISORY AND OPERATIONS COMMITTEES			
COMMITTEE	CHAIR	COMPOSITION	CHARGE
Practice Advisory Board	Associate Dean for Public Health Practice	Representatives from community health centers, housing authorities, health boards, and state and municipal departments of public health	Provides qualitative feedback on SPH service and practice activities, gives input on how to strengthen community connections and effectively partner in advancing the health of the public and the field of public health.
Practicum Committee	Assistant Dean of Career Services	One faculty representative from each of the academic departments, and the Manager of Practicum	Guides students through their practicum experience including approval of proposals, deliverables, and grading to ensure required CEPH competencies are met; informs the overall student and practicum supervisor experience; and provides input and expertise into practicum policies and procedures.
Sponsored Programs Operating Committee (SPOC)	Director of Sponsored Research	SPH grants managers from each department	Identifies, discusses, addresses issues, shares ideas and develops school-wide best practices for management of sponsored programs.

In addition to the school's committees, the **Faculty Senate** is an elected body that includes at least one faculty member from each department. The purpose of the Faculty Senate is to consider or recommend action, as appropriate, on all matters affecting the academic and professional concerns of the faculty of the school, including any matters as may be referred to it by the Dean or the Governing Council. The Senate, established in September 2007, has its own bylaws and governing structure.

The Faculty Senate is comprised of no more than 18 members who serve staggered terms. Senators self-nominate and are elected by the faculty. The Senate plays a formal role in the school's decision-making process, reviewing and submitting comments on all major policy issues voted on by the GC. The Faculty Senate also has seats on the GC.

2) Briefly describe which committee(s) or other responsible parties make decisions on each of the following areas and how the decisions are made:

- a. degree requirements
- b. curriculum design
- c. student assessment policies and processes
- d. admissions policies and/or decisions
- e. faculty recruitment and promotion
- f. research and service activities (self-study document)

- a. Changes to degree requirements are proposed by the program directors or faculty leads to the school's Education Committee, which is responsible for reviewing all proposals. The committee thoroughly discusses each proposal, votes to approve or reject each approval, and sends any notes to the faculty making the proposal. Significant changes to degrees, such as the addition of a new specialization, must also be approved by the Governing Council and then approved by the university's Graduate Academic Programs and Policies (GAPP) committee.

- b. Similar to the process described in A1.2.a, program directors or faculty leads submit curricular modifications which are then reviewed and approved or rejected by the Education Committee and sent to the GC and then to the university's GAPP committee for approval.
- c. The Education Committee sets all academic policies and procedures at SPH, including policies on student assessment. The school's Satisfactory Academic Progress committee monitors students' progress toward their degree and makes policy and procedure recommendations to the Education Committee and Associate Dean for Education as needed. As described in Criterion B1, the Educational Evaluation Subcommittee, a subcommittee of the Education Committee, oversees the educational evaluation plan.
- d. Admissions policies and recommendations for admission to the MPH program are made by the MPH committee. Policies and recommendations for admission to the MS, PhD, and DrPH programs are made by faculty committees for the respective degree program. Formal offers of admission are made by the Admissions Office, following the recommendations made by the faculty.
- e. As described in the school's Appointment and Promotion Guidelines, ad hoc search committees are formed by department chairs once a faculty position has been approved. These committees are comprised of faculty from the department, at least one faculty member from outside the department, and an ex officio member from the Faculty Resources Office. Once a candidate is identified, the Appointment and Promotions Committee makes recommendations to appoint or promote faculty. Final approval of actions are made by the Dean, Medical Campus Provost, or President of Boston University, depending on the track or rank.
- f. Faculty determine their research and service activities in consultation with their department chair. The Research and Practice Committees advise and support faculty in their activities as appropriate. The university Office of Sponsored Programs facilitates the grant submission process and sets policies related to submission procedures and deadlines.

3) A copy of the bylaws or other policy documents that determine the rights and obligations of administrators, faculty and students in governance of the school. (electronic resource file)

The SPH bylaws are available as [ERF A1.3.1](#).

4) Briefly describe how faculty contribute to decision-making activities in the broader institutional setting, including a sample of faculty memberships and/or leadership positions on committees external to the unit of accreditation. (self-study document)

SPH faculty are active participants in the decision making processes at both the university- and medical campus-level. A list of SPH committee members serving on each of the following committees is included on [ERF A1.1.1](#).

Medical campus committees:

- The **Academic and Educational Resource Committee** is a collaborative, BUMC Campus-wide Committee charged with oversight, planning, and design of shared academic spaces throughout the campus.
- The **Boston University Medical Campus Provost Council** is a weekly meeting held to facilitate communication and collaboration between its members and to keep the Provost apprised of various programs, goals, and developments.

- The **Institutional Review Board (IRB)** reviews research from investigators at Boston Medical Center and Boston University Medical Campus.

University committees:

- The **Boston University Council** considers matters that are of common concern to faculty and administrators that affect two or more schools and colleges of the university.
- The **Boston University Faculty Council** speaks for the faculty on matters of importance to the University and on all matters affecting the academic and professional concerns of the faculty of two or more schools or colleges of the university.
- The **Boston University Graduate Council** serves in an advisory role to the University Provost and assists in developing and promoting best practices and policies to serve the entire graduate community, including students, faculty and staff from across the institution.
- The **Boston University Provost Council** apprises the University Provost of developments, programs, or issues within the university, and serves as a means for discussion and/or collaboration between the university's 17 schools and colleges. The University Provost functions as chair and the body is composed of the deans of Boston University.
- The **Boston University Research Council** provides an important connection between the schools and colleges where research is carried out and the offices that support them.
- The **Council on Educational Technology and Learning Innovation (CETLI)** is a university-wide group charged with discussing key assertions about the potential role of educational technology both in our on-campus, residential programs and as a means for reaching new learning communities via synchronous and asynchronous technologies.
- The **Graduate Academic Programs and Policies (GAPP)** committee reviews and approves proposals for new and revised programs submitted through the university eCAP system, and for new and revised policies put forward by the Graduate Council or other bodies. As required, the Committee presents program and policy proposals to the University Council for discussion and vote. The Committee is comprised of provosts and faculty from across the university.
- The **University Committee on Academic Program Review (CAPR)** is a standing committee composed of senior faculty representing the breadth of the university's schools and colleges that serves as a governing entity with faculty oversight of the program review process.
- The **Provost's Faculty Teaching Awards Committee** recommends to the President the winners of the Metcalf Cup and Prize and Metcalf Awards, and selects the United Methodist Church Scholar/Teacher of the Year and the recipients of other university-wide awards for excellence in teaching.
- The **Task Force on Evaluating Teaching** is responsible for establishing standard guidelines and practices for evaluating teaching on campus.
- The **University Leadership Group (ULG)** is composed primarily of the deans, vice presidents, and senior leaders (provosts, associate provosts, and the president) of the University. Membership is at the discretion of the President. The ULG is not a formal policy-making body with designated powers. It has no formal authority and is merely a consultative body. It is designed to put academic and administrative leaders together on a regular basis to ensure common understanding of emerging university issues or impending initiatives.
- The **University Task Force on Diversity & Inclusion** is charged with facilitating a set of university-wide discussions about how Boston University can become the diverse, inclusive community of faculty we envision, and developing recommendations that will help us achieve this goal.

5) Describe how full-time and part-time faculty regularly interact with their colleagues (self-study document) and provide documentation of recent interactions, which may include minutes, attendee lists, etc. (electronic resource file)

All members of the SPH faculty – primary, secondary, and adjunct – are invited and encouraged to attend school-wide events including teaching workshops, School Assembly, seminars, public health fora, and symposia. All faculty members (full-time and part-time) are also expected to attend monthly department faculty meetings. Full-time and part-time faculty collaborate on research projects, collaborate on teaching and advising, and serve together as mentors. The school hosts an annual social event for adjunct faculty so they may meet one another and interact with their primary faculty colleagues. All faculty, irrespective of tracks, are part of the annual faculty review where all faculty's contributions are evaluated and a plan for engagement for the coming year is agreed upon with each department chair. This ensures tight integration of all faculty, primary or non-primary, in the work of the school.

Documentation of recent interactions, including meeting minutes and attendee lists is available as [ERF A1.5.1](#).

6) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)

The school's committee structure and responsibilities are well-defined and fully established. Committees meet regularly and most have representatives from each department, allowing for a diversity of perspectives in the decision-making processes. Committee representatives report the committee's activities and decisions to their colleagues at monthly department meetings.

SPH is well-represented on campus and university committees, with at least one faculty and/or staff member participating on all major committees. SPH representatives relay the committee's activities and decisions to the appropriate standing committee.

A planned area of improvement is the increased involvement of non-primary faculty in regular faculty meetings and on school, campus, and university committees. The majority of the school's part-time and adjunct faculty are working professionals and unable to attend meetings during the workday. Adjunct and part-time currently receive copies of the meeting minutes and SPH is working to make conference lines available so that all faculty may participate in departmental meetings. The inclusion of all faculty, primary and non-primary, in the annual review over the past two years goes a long way towards ensuring closer integration of all non-primary faculty, as do annual events to bring all non-primary faculty together.

A2. Multi-Partner Schools and Programs

When a school or program is sponsored by more than one regionally-accredited institution and is operated as a single organizational unit, the school or program defines a clear and comprehensive set of organizational rights and responsibilities that address operational, curricular and resource issues. Memoranda of agreement or other similar documents outline all such rights and responsibilities.

The school or program has a single identified leader (dean or director) and a cohesive chain of authority for all decision making relevant to the educational program that culminates with this individual.

Required documentation:

- 1) Describe the major rights and responsibilities of each participating institution. (self-study document)
- 2) A copy of the formal written agreement that establishes the rights and obligations of the participating universities in regard to the school or program's operation. (electronic resource file)
- 3) Describe the role and responsibilities of the identified leader. (self-study document)
- 4) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area.

(self-study document)

This criterion is not applicable.

A3. Student Engagement

Students have formal methods to participate in policy making and decision making within the school, and the school engages students as members on decision-making bodies whenever appropriate.

1) Describe student participation in policy making and decision making at the school level, including identification of all student members of school committees over the last three years, and student organizations involved in school governance, if relevant to this criterion. (self-study document)

SPH students play an active role in policy and decision making at the school. Student leadership is governed through an active, engaged Student Senate. The Student Senate forms its own initiatives and oversees all student organizations within SPH. The Senate is self-governed and selects its own leadership team with mentoring from Graduate Student Life.

Each of the school's standing committees has at least one student member. These students serve as full voting members, with equal voice as other committee members, and are charged with reporting back to the student body about the committee's activities and decisions. The president of the Student Senate is a voting member of the Governing Council and, in response to a standing agenda item, provides a Student Senate update at every meeting. Student membership for all other standing committees is done by self-nomination and all degree candidates are encouraged to apply. Student members are selected by the relevant committee in consultation with the Director of Graduate Student Life.

The school also involves students in faculty and leadership position searches. Each search includes an open presentation to which students are invited and asked for feedback. The feedback is considered by the selection committee before identifying finalists.

Student committee members are critical voices in the leadership of the school. A listing of student committee members serving in the last few years is included as Table A3.1.1.

Table A3.1.1. Student members on school-wide committee (degree enrollment)

	2015-2016	2016-2017	2017-2018
Governing Council	E. Zaret (MPH) B. Armstrong (MPH)	S. Jang (MPH)	E. Lai (MPH)
Education Committee	A. O'Dea (MPH) U. Samarakoon (MPH)	J. Sheridan (MPH 4+1) S. Jang (MPH)	S. Boyd (MPH)
Enrollment Committee	C. Roman (MPH)	--	--
Practice Committee	F. Kidwai (MPH)	W. Hodge (MPH) L. Savage (MPH) J. Walsh (MPH)	S. Rajeh (MPH)
Research Committee	M. Horny (PhD)	J. Keefe (MPH)	C. Murrieta (MPH)
BUMC Student Services Committee	A. McIntosh (MPH)	L. Chatelain (MPH)	P. Malhotra (MPH)

2) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)

Student participation in school-wide committees is structured and valued at SPH. Student members are engaged partners in governance and have critical voices in policy and decision making.

Increasingly, MPH students complete their degree in 18 months; identifying student representatives who have both completed one semester of courses and can serve for a full year is an ongoing challenge. The result is that most student members only serve for one academic year, and given the typical onboarding time for committees, students often are shy about contributing for the first few meetings. Several committees have developed informal training and transition processes between student members and an area of improvement would be to make this more routine. Because many committees also have set schedules, find a student representative who is also available for set meeting times adds a layer of complexity. This is the case for the Enrollment Committee, a group that convenes weekly during the academic year. The school is working to standardize and enhance the recruitment efforts for all committees by providing more specific position description and administering the process through a single point of contact in Graduate Student Life.

A4. Autonomy for Schools of Public Health

A school of public health operates at the highest level of organizational status and independence available within the university context. If there are other professional schools in the same university (eg, medicine, nursing, law, etc.), the school of public health shall have the same degree of independence accorded to those professional schools. Independence and status are viewed within the context of institutional policies, procedures and practices.

1) Briefly describe the school's reporting lines up to the institution's chief executive officer. The response may refer to the organizational chart provided in the introduction. (self-study document)

As indicated on Figure Intro-2.2, the Dean of the School of Public Health reports jointly to the University Provost and Medical Campus Provost, both of whom report to the University President.

2) Describe the reporting lines and levels of autonomy of other professional schools and identify any differences between the school of public health's reporting lines/level of autonomy and those of other units. (self-study document)

SPH has the same or a greater level of autonomy compared to other professional schools at Boston University. SPH is governed by its own by-laws, sets its own strategic goals, and recruits and terminates faculty and staff as needed. As with all other schools at Boston University, the school must have university-level approval to form or dissolve departments, start or discontinue degree programs and concentrations, and appoint or promote faculty on particular tracks.

The Dean has all the authority and prerogatives accorded to all school and college deans at the university. He meets regularly with senior university administrators to discuss progress and issues at the school. As with other deans, he formally meets with the University President regularly; sits on the Provost's Council, a body comprised of the deans of all of the schools within the university; sits on the University Council, the senior policy making body of the university; and is a member of the Leadership Group, consisting of the University President, deans, and provosts.

Importantly the school has maximal budgetary authority. The School of Public Health, like the School of Medicine and the School of Dental Medicine, is a revenue center, setting budgets in accordance with grant and tuition income, both of which flow directly to the school. The budget is subject to final approval by the University President, as appropriate. SPH is responsible for directly covering certain shared campus expenses such as the library, security, and maintenance costs. At the end of the day, SPH has wide berth over strategic directions and aligning a budget with its self-determined strategic goals and aspirations.

3) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)

The school is an integral part of Boston University, an accredited institution of higher education, and has at least the same level of independence and status accorded to other Boston University professional schools. The Dean's reporting lines to two provosts occasions some challenges in terms of having multiple meetings, annual reviews etc., but it also brings strengths—it integrates the school closely with the Medical Campus and overall university leadership, both areas where the school should be integrated and present.

A5. Degree Offerings in Schools of Public Health

A school of public health offers a professional public health master's degree (eg, MPH) in at least three distinct concentrations (as defined by competencies in Criterion D4) and public health doctoral degree programs (academic or professional) in at least two concentrations (as defined by competencies in Criterion D4). A school may offer more degrees or concentrations at either degree level.

1) Affirm that the school offers professional public health master's degree concentrations in at least three areas and public health doctoral degree programs of study in at least two areas. (self-study document)

The school offers two professional degrees: the Master in Public Health (MPH) and the Doctor of Public Health (DrPH). The MPH prepares students with a broad mastery of public health subject matter and methods necessary to practice in the field. The school offers nine certificate specializations (formerly known as concentrations) in the MPH program, called functional certificates: Community Assessment, Program Design, Implementation, and Evaluation; Design and Conduct of Public Health Research; Environmental Hazard Assessment; Epidemiology and Biostatistics; Health Communication and Promotion; Health Policy and Law; Healthcare Management; Monitoring and Evaluation; and Program Management. All MPH students are required to choose a functional certificate. MPH students may also elect to complete an optional context certificate, which focus on key populations or areas of interest within public health. Optional context certificates include Chronic and Non-Communicable Diseases; Global Health; Infectious Disease; Maternal and Child Health; Mental Health and Substance Use; Pharmaceuticals; Sex, Sexuality, and Gender; and Social Justice, Human Rights, and Health Equity. Additionally, the school collaborates with seven other schools at the university to grant dual degrees, which are outlined in the Instructional Matrix. The Executive MPH offers one specialization in Public Health Practice and is designed for experienced public health professionals seeking masters training. The DrPH in Leadership, Management, and Policy prepares experienced public health professionals seeking advanced training for leadership positions in public health.

The school's academic degree programs prepare students for careers in research and academia. The academic degrees include five Master of Science (MS) degrees in Applied Biostatistics, Epidemiology, Environmental Health Data Analytics, Health Services and Systems Research, and Public Health Nutrition, and the three Doctor of Philosophy (PhD) degrees in Environmental Health, Epidemiology, and Health Services Research. The school's Biostatistics Department plays an essential role in both the administrative and educational aspects of the MA and PhD in Biostatistics. While the degrees are officially conferred by the **Graduate School of Arts and Sciences**, they are included as part of the unit of accreditation as the majority of courses and all advising occurs at SPH.

2) An official catalog or bulletin that lists the degrees offered by the school. (electronic resource file or hyperlink in self-study document)

Boston University's official catalog of degrees offered by the School of Public Health can be found in the University Bulletin: bu.edu/academics/sph/programs/.

B1. Guiding Statements

The school defines a vision that describes how the community/world will be different if it achieves its aims.

The school defines a mission statement that identifies what the school will accomplish operationally in its instructional, community engagement and scholarly activities. The mission may also define the school's setting or community and priority population(s).

The school defines goals that describe strategies to accomplish the defined mission.

The school defines a statement of values that informs stakeholders about its core principles, beliefs and priorities.

Together, the school's guiding statements must address instruction, scholarship and service and

- must define the ways in which the school plans to 1) advance the field of public health and 2) promote student success.
- may derive from the purposes of the parent institution but also reflect the school's aspirations and respond to the needs of the school's intended service area(s).
- are sufficiently specific to allow the school to rationally allocate resources and to guide evaluation of outcomes.

1) Present the school's vision, mission, goals and values. This may take the form of the executive summary of a strategic plan, or it may take other forms that are appropriate to support the school's ongoing efforts to advance public health and student success. (self-study document)

Vision

A world free of health disparities and where all people have access to care.

Mission

To improve the health of local, national, and international populations, particularly the disadvantaged, underserved, and vulnerable, through excellence and innovation in education, research, and service.

Core Purpose

Think. Teach. Do. for the health of all

Goals

The school's strategic thinking process, described below, resulted in ten goals, referred to by the SPH community as strategic imperatives. The first set of strategic imperatives, SPH 2020, focuses on improving the school's systems and processes so that it is best-positioned to improve the health of populations. Public Health 2030 are ongoing strategic imperatives focused exclusively on work to advance the field of public health through innovative education, research, and service.

SPH 2020 strategic imperatives:

1. Accreditation. Prepare for 2018 reaccreditation and secure reaccreditation for a full 7-year term;
2. In the World. Position SPH as a leading school of public health;
3. Mirror to Self. Strategically evaluate BUSPH's operations and activities;
4. The Next Generation. Train the next generation of public health professionals;
5. Investment in the Future. Ensure BUSPH is positioned for long-term financial stability

Public Health 2030 strategic imperatives:

6. The Public Health Conversation. Lead the public health conversation locally, nationally, and globally;
7. Public Health Leadership. Provide leadership across sectors to improve public health;
8. Program Innovation. Create innovative public health programs in research, education, and service;
9. Scholarship of Consequence. Publish and present frequently cited scholarship; and
10. Activist Public Health. Improve the public's health through service to the local, national, and global community.

These strategies align with the school's mission to improve the health of populations through instruction, scholarship, and service, as indicated in Table B1.1.1.

Table B1.1.1. Alignment between Strategic Imperatives and Education, Research, and Service

Strategic Imperative	Education	Research	Service
1. Accreditation. Prepare for 2018 reaccreditation and secure reaccreditation for a full 7-year term	x	x	x
2. In the World. Position SPH as a leading school of public health	x	x	x
3. Mirror to Self. Strategically evaluate BUSPH's operations and activities	x	x	x
4. The Next Generation. Train the next generation of public health professionals	x	x	
5. Investment in the Future. Ensure BUSPH is positioned for long-term financial stability	x	x	x
6. The Public Health Conversation. Lead the public health conversation locally, nationally, and globally	x	x	x
7. Public Health Leadership. Provide leadership across sectors to improve public health			x
8. Program Innovation. Create innovative public health programs in research, education, and service	x	x	x
9. Scholarship of Consequence. Publish and present frequently cited scholarship	x	x	
10. Activist Public Health. Improve the public's health through service to the local, national, and global community			x

As indicated in Table B1.1.2 and described in more detail in criterion B5, the school's goals seek to advance the field of public health and student success.

Table B1.1.2. Alignment between Strategic Imperatives and Advancing the Field and Student Success

Strategic Imperative	Advances the Field of Public Health	Advances Student Success
1. Accreditation. Prepare for 2018 reaccreditation and secure reaccreditation for a full 7-year term		x
2. In the World. Position SPH as a leading school of public health	x	x
3. Mirror to Self. Strategically evaluate BUSPH's operations and activities		x

4. The Next Generation. Train the next generation of public health professionals		x
5. Investment in the Future. Ensure BUSPH is positioned for long-term financial stability		x
6. The Public Health Conversation. Lead the public health conversation locally, nationally, and globally	x	
7. Public Health Leadership. Provide leadership across sectors to improve public health	x	
8. Program Innovation. Create innovative public health programs in research, education, and service	x	x
9. Scholarship of Consequence. Publish and present frequently cited scholarship	x	
10. Activist Public Health. Improve the public's health through service to the local, national, and global community	x	x

As indicated in criterion **B5**, each of the school's goals has specific measures, targets, and tactics, which provide guidance about concrete steps that must be taken and resource allocation.

Values

Values drive the work of SPH and how that work is done. Faculty, students, and staff are deeply committed to igniting positive change in the world; we seek to create a respectful, collaborative, diverse, and inclusive community within SPH; and work to promote justice, human rights, and equity within and across local and global communities. SPH is bold in the pursuit of knowledge that matters, creative in the pursuit of solutions, and innovative in education. In all, it is the engagement with people, communities, and institutions in the world beyond the academic walls that leads to success.

Strategic Thinking Process

In 2015, the school launched a strategic thinking process brought together faculty, staff, students, alumni, and community members in a truly collaborative process. During Spring 2015, 169 community members offered ideas in 13 roundtable sessions, and 145 members discussed these and other ideas at a community-wide meeting in May 2015. Eight inquiry groups then investigated potential directions that the school might pursue and presented their preliminary conclusions for discussion at a second community-wide meeting in September 2015, which was attended by 140 faculty and staff. Just over 100 members of the community gathered one final time in December 2015 to identify a values statement. These documents helped articulate the school's core purpose: Think. Teach. Do. for the health of all – that has animated much of the school's work since.

As detailed in the final report of the strategic thinking process, *Imagining Our Future*, four principles underlie the future direction of the school. They guide the choices in all SPH activities, including scholarship, education, and translation, to work toward a better, healthier, and more equitable world.

- **Significance:** To make the world a healthier and more equitable place, SPH pays particular attention to issues that are especially likely to influence population health and to opportunities to improve population health and well-being.
- **Diversity:** SPH aims to be a school that is inclusive and genuinely embraces diversity along many dimensions of difference, to institutionalize fora in which diverse identities and perspectives become routine, and to create enriched environments for education, scholarship, and translation.
- **Equity:** SPH seeks to address both the causes and implications of inequity in health. Within the school, faculty, students, and staff aim to engage in systematic reflection on external and internal structures, policies, and practices that may create inequity.

- Collaboration: SPH aims to embrace the growing breadth and complexity of public health through encouraging collaboration across disciplines, institutions, and social and economic sectors.

Each principle has relevance to almost every activity at SPH. Together, they guide the development and refinement of the educational programs and how they are taught, who the students are and how SPH promotes their success, as well as what the school's faculty and staff choose to study, who they work with, and how they interact with the members of our community.

The results of the community-wide strategic thinking process were crystallized into the school's strategy map by the Governing Council in Spring 2016.

In addition to this high-level, school-wide approach, the education, research, and practice divisions of the school have evaluation plans that intentionally overlap with and build on the school's strategy map. These evaluation plans are monitored by the Educational Evaluation Subcommittee (a subcommittee of the Education Committee), the Research Committee, and the Practice Committee. This designed overlap allows both for wide input from the faculty, staff, and students who serve on these committees and school leadership on the GC. The associate deans chair the standing committees, sit on the GC, and serve as the bridge between the committees.

A brief description of the education, research, and practice evaluation plans follows.

Educational Evaluation

The Educational Evaluation is designed to inform and measure the strategic imperative "train the next generation of public health professionals." To effectively determine if SPH is appropriately training students in all degree and certificate programs, an extensive and rigorous educational evaluation is being conducted. The educational evaluation plan guides both process evaluation and impact/outcome evaluation. The school launched its educational evaluation efforts with a large-scale evaluation of the BU MPH, the school's largest degree program, allowing for testing data collection tools and evaluation methodologies that can be applied across programs over time and for rigorous evaluation of curriculum changes that will impact other degree programs (i.e., course evaluations).

The educational evaluation plan examines each of the BU MPH's five curricular components, guided by a curriculum logic model that outlines specific short-term outcomes (defined as at the point of finishing that curricular component), intermediate outcomes (defined as at graduation to 6-months post-graduation), and long-term outcomes (defined as 6-months to 5-years post-graduation) resulting from the implementation of the curricular components. These outcomes are translated into evaluation questions, which then dictate the data collection strategy and data analysis plan to answer the evaluation questions.

The Education Evaluation Subcommittee (EES), which reports to the Education Committee, is responsible for the design and conduct of all educational evaluation activities at SPH. Members of the Education Committee disseminate results to their respective departments. As described in criterion A1, the EES is comprised of faculty and staff from across the school with expertise in evaluation and curriculum, an independent consultant, community partner advisors, and an advisory board of additional faculty with relevant expertise.

Practice Evaluation

The Activist Lab serves as a catalyst between SPH and the community to educate, innovate, and advocate to benefit public health. The practice evaluation plan evaluates the school's success in those three areas with five distinct goals: to disseminate knowledge within SPH about the underlying causes, effects, and interactions of critical public health issues; to improve the skills and competencies of public health practitioners to address critical public health issues; to identify and address barriers to health

through innovative strategies that increase engagement of and with the community; to improve public policy to optimize the use of critical public health resources; and to respond to emerging and evolving public health events by effectively engaging and mobilizing stakeholders. The practice evaluation plan is overseen by the Practice Committee, which is comprised of faculty from across the school, staff from the Activist Lab, and public health practitioners and community partners.

Research Evaluation

The research evaluation plan examines three areas: the scholarly productivity of SPH faculty, the impact of SPH research, and how SPH research promotes student success. Designed and conducted by the Research Committee, the evaluation plan pulls together information from a variety of sources, including the Annual Faculty Review, department reports, and university research support offices and systems. Results are communicated back to the departments by members of the Research Committee and to the GC by the Associate Dean for Research and Faculty Advancement. As described in criterion [A1](#), the Research Committee is comprised of faculty from across the school.

2) If applicable, a school-specific strategic plan or other comparable document. (electronic resource file)

The school's evaluation plans are available in the electronic resource files:

- SPH Strategy Map: [ERF B1.2.1](#)
- Educational Evaluation Plan: [ERF B1.2.2](#)
- Practice Evaluation Plan: [ERF B1.2.3](#)
- Research Evaluation Plan: [ERF B1.2.4](#)

3) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)

The school's work is informed by a strategy map that emerged as a culmination of a year of research, discussion, and thought led by the Strategic Thinking Steering Group and finalized into a plan by the Governing Council.

Designed to be a living document, the strategy map will change over time to align with changes in the field. While long-term planning to 2030 is both necessary and an essential way to create sustained change, there are challenges to communicating the urgency of acting now to achieve a goal more than 10 years in the future. To keep these measures "fresh," many were incorporated into the annual faculty review process and serve as an annual check of the school's impact on the field and continue the momentum towards achieving those goals.

As is necessary in a strategy map for a large, diverse, and complex institution, SPH's strategic imperatives point toward advancing the field and measures student, faculty, and school outcomes in very specific ways. As detailed in criteria [B5](#) and [B6](#), the school has a comprehensive educational evaluation plan, designed to measure both process and outcomes (short-term, intermediate, and long-term) for students (i.e., success in the classroom and preparedness for their careers), faculty and staff (i.e., effective teaching and active engagement), and school. The results of this evaluation are used to set goals, establish new initiatives, and improve the quality of current offerings as needed.

B2. Graduation Rates

The school collects and analyzes graduation rate data for each public health degree offered.

The school achieves graduation rates of 70% or greater for bachelor's and master's degrees and 60% or greater for doctoral degrees.

1) Graduation rate data for each public health degree. (self-study document)

Graduation rate data for each public health degree is available as Table B2.1.1 – B2.1.5.⁶

Table B2.1.1. MPH Students by Cohort, Entering Between 2013-14 and 2017-18⁷

	Cohort of Students	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
2013-2014	# Students continuing at beginning of this school year (or # entering for newest cohort)	440				
	# Students withdrew, dropped, etc.	9				
	# Students graduated	13				
	Cumulative graduation rate	3%				
2014-2015	# Students continuing at beginning of this school year (or # entering for newest cohort)	416	447			
	# Students withdrew, dropped, etc.	17	10			
	# Students graduated	295	11			
	Cumulative graduation rate	70%	2%			
2015-2016	# Students continuing at beginning of this school year (or # entering for newest cohort)	104	424	476		
	# Students withdrew, dropped, etc.	10	11	5		
	# Students graduated	72	293	13		
	Cumulative graduation rate	86%	68%	3%		
2016-2017	# Students continuing at beginning of this school year (or # entering for newest cohort)	24	120	458	372	
	# Students withdrew, dropped, etc.	4	9	12	3	
	# Students graduated	12	84	308	0	
	Cumulative graduation rate	89%	87%	67%	0%	
2017-2018	# Students continuing at beginning of this school year (or # entering for newest cohort)					
	# Students withdrew, dropped, etc.					
	# Students graduated					
	Cumulative graduation rate					

⁶ Data as of 10/30/17; includes September 2017 graduations. Data will be updated for the final self-study.

⁷ Students who are on official or unofficial leaves of absence are not counted as continuing.

Table B2.1.2. MA Students by Cohort, Entering Between 2013-14 and 2017-18⁸

	Cohort of Students	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
2013-2014	# Students continuing at beginning of this school year (or # entering for newest cohort)	6				
	# Students withdrew, dropped, etc.	0				
	# Students graduated	1				
	Cumulative graduation rate	17%				
2014-2015	# Students continuing at beginning of this school year (or # entering for newest cohort)	5	5			
	# Students withdrew, dropped, etc.	0	0			
	# Students graduated	5	1			
	Cumulative graduation rate	100%	20%			
2015-2016	# Students continuing at beginning of this school year (or # entering for newest cohort)	0	4	4		
	# Students withdrew, dropped, etc.	0	1	0		
	# Students graduated	0	3	0		
	Cumulative graduation rate	100%	80%	0%		
2016-2017	# Students continuing at beginning of this school year (or # entering for newest cohort)	0	0	4	5	
	# Students withdrew, dropped, etc.	0	0	0	0	
	# Students graduated	0	0	2	0	
	Cumulative graduation rate	100%	80%	50%	0%	
2017-2018	# Students continuing at beginning of this school year (or # entering for newest cohort)	0	0			
	# Students withdrew, dropped, etc.	0	0			
	# Students graduated	0	0			
	Cumulative graduation rate	100%	80%			

Table B2.1.3. MS Students by Cohort, Entering Between 2013-14 and 2017-18⁹

	Cohort of Students	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
2013-2014	# Students continuing at beginning of this school year (or # entering for newest cohort)	8				
	# Students withdrew, dropped, etc.	0				
	# Students graduated	1				
	Cumulative graduation rate	13%				
2014-2015	# Students continuing at beginning of this school year (or # entering for newest cohort)	7	13			
	# Students withdrew, dropped, etc.	1	1			
	# Students graduated	1	0			
	Cumulative graduation rate	25%	0%			

⁸ Students who are on official or unofficial leaves of absence are not counted as continuing. Students in the dual PhD/MA program are counted with the PhD numbers.

⁹ Students who are on official or unofficial leaves of absence are not counted as continuing.

	Cohort of Students	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
2015-2016	# Students continuing at beginning of this school year (or # entering for newest cohort)	3	12	17		
	# Students withdrew, dropped, etc.	0	0	1		
	# Students graduated	0	6	2		
	Cumulative graduation rate	50%	46%	12%		
2016-2017	# Students continuing at beginning of this school year (or # entering for newest cohort)	3	5	14	9	
	# Students withdrew, dropped, etc.	0	0	1	0	
	# Students graduated	0	4	10	1	
	Cumulative graduation rate	50%	77%	71%	11%	
2017-2018	# Students continuing at beginning of this school year (or # entering for newest cohort)					
	# Students withdrew, dropped, etc.					
	# Students graduated					
	Cumulative graduation rate					

Table B2.1.4. DrPH Students by Cohort, Between 2011-2012 and 2017-2018¹⁰

	Cohort of Students	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
2011-2012	# Students entered	7						
	# Students withdrew, dropped, etc.	0						
	# Students graduated	0						
	Cumulative graduation rate	0%						
2012-2013	# Students continuing at beginning of this school year (or # entering for newest cohort)	6	9					
	# Students withdrew, dropped, etc.	0	1					
	# Students graduated	0	0					
	Cumulative graduation rate	0%	0%					
2013-2014	# Students continuing at beginning of this school year (or # entering for newest cohort)	6	8	9				
	# Students withdrew, dropped, etc.	1	0	0				
	# Students graduated	1	0	0				
	Cumulative graduation rate	14%	0%	0%				
2014-2015	# Students continuing at beginning of this school year (or # entering for newest cohort)	5	8	9	7			
	# Students withdrew, dropped, etc.	0	1	1	0			

¹⁰ Students who are on official or unofficial leaves of absence are not counted as continuing.

	Cohort of Students	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
	# Students graduated	0	1	0	0			
	Cumulative graduation rate	14%	11%	0%	0%			
2015-2016	# Students continuing at beginning of this school year (or # entering for newest cohort)	4	5	7	7	7		
	# Students withdrew, dropped, etc.	0	0	0	0	0		
	# Students graduated	0	2	1	0	0		
	Cumulative graduation rate	14%	33%	11%	0%	0%		
2016-2017	# Students continuing at beginning of this school year (or # entering for newest cohort)	5	4	7	7	7	7	
	# Students withdrew, dropped, etc.	0	0	0	0	0	0	
	# Students graduated	3	0	1	0	0	0	
	Cumulative graduation rate	57%	33%	22%	0%	0%	0%	
2017-2018	# Students continuing at beginning of this school year (or # entering for newest cohort)							
	# Students withdrew, dropped, etc.							
	# Students graduated							
	Cumulative graduation rate							

Table B2.1.5. PhD Students by Cohorts, Entering Between 2011-2012 and 2017-2018¹¹

	Cohort of Students	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
2011-2012	# Students entered	27						
	# Students withdrew, dropped, etc.	0						
	# Students graduated	0						
	Cumulative graduation rate	0%						
2012-2013	# Students continuing at beginning of this school year (or # entering for newest cohort)	27	20					
	# Students withdrew, dropped, etc.	0	0					
	# Students graduated	0	0					
	Cumulative graduation rate	0%	0%					
2013-2014	# Students continuing at beginning of this school year (or # entering for newest cohort)	27	19	19				

¹¹ Students who are on official or unofficial leaves of absence are not counted as continuing. Students in the dual PhD/MA program are counted with the PhD numbers.

	Cohort of Students	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
	# Students withdrew, dropped, etc.	1	0	1				
	# Students graduated	1	0	0				
	Cumulative graduation rate	4%	0%	0%				
2014-2015	# Students continuing at beginning of this school year (or # entering for newest cohort)	25	19	18	22			
	# Students withdrew, dropped, etc.	0	1	1	0			
	# Students graduated	4	1	0	0			
	Cumulative graduation rate	19%	5%	0%	0%			
2015-2016	# Students continuing at beginning of this school year (or # entering for newest cohort)	21	18	17	22	21		
	# Students withdrew, dropped, etc.	1	1	1	0	1		
	# Students graduated	5	2	0	0	0		
	Cumulative graduation rate	37%	15%	0%	0%	0%		
2016-2017	# Students continuing at beginning of this school year (or # entering for newest cohort)	15	15	16	22	20	18	
	# Students withdrew, dropped, etc.	0	0	0	0	0	0	
	# Students graduated	10	8	2	0	0	0	
	Cumulative graduation rate	74%	55%	11%	0%	0%	0%	
2017-2018	# Students continuing at beginning of this school year (or # entering for newest cohort)							
	# Students withdrew, dropped, etc.							
	# Students graduated							
	Cumulative graduation rate							

 2) Data on public health doctoral student progression. (self-study document)

Doctoral student progress by degree is available as Table B2.2.1.

Table B2.2.1. Doctoral Student Data for year 2017¹²

	DrPH	PhD in Biostatistics	PhD in Environmental Health	PhD in Epidemiology	PhD in Health Services Research
# newly admitted in 2017	10	10	3	6	4
# currently enrolled (total) in 2017	43	43	17	26	21
# completed coursework during 2016	7	6	5	6	4
# advanced to candidacy (cumulative) during 2016	5	6	5	6	4
# graduated in 2016	9	8	2	9	5

 3) Explain the data presented above, including identification of factors contributing to any rates that do not meet this criterion's expectations and plans to address these factors. (self-study document)

The school successfully graduates the majority of students, as indicated in Table B2.3.1. The MPH, the school's largest degree program, consistently graduates over 90% of students, and the MA, DrPH, and PhD degree programs consistently met required graduation rates over the past five years.

Table B2.3.1. Cumulative master's graduation rates by degree program, by matriculation date

	2009-2010		2010-2011		2011-2012		2012-2013		2013-2014 ¹³	
	n	%	n	%	n	%	n	%	n	%
MPH	366	94%	378	92%	343	92%	488	92%		
MA	6	83%	4	100%	6	100%	5	100%		
MS	14	79% ¹⁴	18	78%	19	63%	19	68%		

Table B2.3.2. Cumulative master's graduation rates by degree program, by matriculation date

	2007-2008		2008-2009		2009-2010		2010-2011		2011-2012 ¹⁵	
	n	%	n	%	n	%	n	%	n	%
DrPH	10	60%	11	64% ¹⁶	8	63%	8	88%		
PhD	9	78%	14	86%	21	86%	21	71%		

¹² Data will be updated for the final self-study.

¹³ Maximum time to graduation will be reached in Summer 2018; data will be updated for the final self-study.

¹⁴ Two MS students graduated in six years, one year after the maximum time to completion.

¹⁵ Maximum time to graduation will be reached in Summer 2018; data will be updated for the final self-study.

¹⁶ One DrPH student graduated in eight years, one year after the maximum time to completion.

As indicated in an Interim Report filed with CEPH in May 2017, the school has experienced difficulty in meeting the required graduation rate for the MS programs. This lower than anticipated graduation rate among MS students is due, in large part, to a small numbers issue. Prior to Fall 2017, most MS students were physicians who simultaneously engaged in post-graduate medical training programs. These students often left without completing an MS thesis in order to accept new positions as fellows or attending physicians. They were typically outstanding students who have busy, complex lives.

The school took significant steps to address the graduation rates in the MS programs. In Fall 2017, SPH launched three revised and two new MS programs in Applied Biostatistics, Environmental Health Data Analytics, Epidemiology, Health Services and Systems Research, and Public Health Nutrition. Recognizing that the field and needs of students have changed, these programs provide rigorous training in research in an intensive one-year full-time format or in two years part-time. The previous MS student population, comprised primarily of practicing physicians, continues to be recruited into the program but the primary target audience is full-time students interested in the one-year program.

The new and revised MS programs provide fundamental training in public health research through revised coursework and a MS capstone. MS coursework now totals 32-34 credits and places a greater emphasis on essential skills for research in the student's chosen discipline. The replacement of the thesis with the capstone is significant. The largest point of attrition with prior MS programs was in the multi-year thesis portion of the degree. Students in the new and revised MS programs begin their capstones concurrent with other coursework and complete their research in the following semester.

SPH also revised and strengthened faculty advising in the new programs with school-wide support for faculty directors and program managers for each program who oversee all aspects of each program, including the development of and training on new advising guidelines for each program. For example, faculty advisors are charged with ushering students through coursework and their MS capstone. MS students also have access to the recently revitalized advising resources available to all SPH students: assigned faculty advisors, professional staff advisors in the Registrar's Office, and career advisors in the Career Services and Practicum Office. Each of these advisors will participate in regular, formal training activities, an enhancement from previous years.

4) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)

The school has formal procedures and policies for carefully monitoring student progress. The Registrar assesses student progress each semesters and contacts faculty advisors when students fail to make adequate progress toward their degree. The vast majority of students complete their degrees consistent with the school's expectations.

SPH has taken significant steps to address less than ideal graduation rates in the MS programs. The new and revitalized programs align with the needs of the field and are positioned to attract a broader student audience, many of whom will complete the program full-time in one year. Faculty directors, faculty advisors, and program managers are well-trained in program requirements and advising procedures so they may usher students through their degree programs.

B3. Post-Graduation Outcomes

The school collects and analyzes data on graduates' employment or enrollment in further education post-graduation, for each public health degree offered.

The school chooses methods that are explicitly designed to minimize the number of students with unknown outcomes. This expectation includes collecting data that accurately presents outcomes for graduates within approximately one year of graduation, since collecting data shortly before or at the exact time of graduation will result in underreporting of employment outcomes for individuals who begin their career search at graduation. In many cases, these methods will require multiple data collection points. The school need not rely solely on self-report or survey data and should use all possible methods for collecting outcome data.

The school achieves rates of 80% or greater employment or enrollment in further education within the defined time period for each degree.

1) Data on post-graduation outcomes (employment or enrollment in further education) for each public health degree. (self-study document)

Post-graduation outcomes for SPH students are available as Tables B3.1.1 – B3.1.5.

Table B3.1.1. Post-graduation Outcomes for MPH Students

MPH Degree	2016	2017	2018 ¹⁷
Employed	357	347	
Continuing education/training (not employed)	23	23	
Not seeking employment or not seeking additional education by choice	9	1	
Actively seeking employment or enrollment in further education	5	11	
Unknown	27	19	
Total	421	401	
% employed	99%	97%	

Table B3.1.2. Post-graduation Outcomes for MA Students

MA Degree	2016	2017	2018 ¹⁸
Employed	6	3	
Continuing education/training (not employed)	3	2	
Not seeking employment or not seeking additional education by choice			
Actively seeking employment or enrollment in further education			
Unknown	1		
Total	10	5	
% employed	100%	100%	

¹⁷ Data will be updated for the final self-study.

¹⁸ Data will be updated for the final self-study.

Table B3.1.3. Post-graduation Outcomes for MS Students

MS Degree	2016	2017	2018 ¹⁹
Employed	8	6	
Continuing education/training (not employed)	1	3	
Not seeking employment or not seeking additional education by choice		1	
Actively seeking employment or enrollment in further education	1	1	
Unknown	1		
Total	11	11	
% employed	90%	90%	

Table B3.1.4. Post-graduation Outcomes for DrPH Students

DrPH Degree	2016	2017	2018 ²⁰
Employed	4	7	
Continuing education/training (not employed)			
Not seeking employment or not seeking additional education by choice		1	
Actively seeking employment or enrollment in further education			
Unknown			
Total	4	8	
% employed	100%	100%	

Table B3.1.5. Post-graduation Outcomes for PhD Students

PhD Degree ²¹	2016	2017	2018 ²²
Employed	15	12	
Continuing education/training (not employed)			
Not seeking employment or not seeking additional education by choice	1		
Actively seeking employment or enrollment in further education			
Unknown			
Total	16	12	
% employed	100%	100%	

¹⁹ Data will be updated for the final self-study.

²⁰ Data will be updated for the final self-study.

²¹ PhD graduates in post-doc positions are counted as employed.

²² Data will be updated for the final self-study.

2) Explain the data presented above, including identification of factors contributing to any rates that do not meet this criterion's expectations and plans to address these factors. (self-study document)

The school exceeds the required employment rate for all degree programs. Employment data is collected through a variety of methods: graduate completion of a survey, personal communication with faculty and the **Career Services and Practicum Office**, and connecting with alumni on LinkedIn. The school makes every effort to minimize the number of unknowns.

3) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)

The school is proud of its alumni and their ability to secure public health employment upon graduating from their degree programs. As detailed in criterion **H2**, the Career Services and Practicum Office offers a comprehensive professional development course called Career PREP, which is required for all MPH students and recommended for other degree candidates. Students begin working with career and practicum advisors at the beginning of their degree program and these professional staff work collaboratively with faculty and the academic departments to develop certificate-based programming and leverage career development opportunities. The Career Services and Practicum Office also builds and maintains relationships with employers around the globe so that SPH graduates are informed of and referred to open positions, often before they are posted for the public. Finally, career services are a life-long service, available to alumni at any stage of their career. Alumni, in turn, often identify career opportunities for recent graduates.

B4. Alumni Perceptions of Curricular Effectiveness

For each degree offered, the school collects information on alumni perceptions of their own success in achieving defined competencies and of their ability to apply these competencies in their post-graduation placements.

The school defines qualitative and/or quantitative methods designed to maximize response rates and provide useful information. Data from recent graduates within the last five years are typically most useful, as distal graduates may not have completed the curriculum that is currently offered.

The school documents and regularly examines its methodology as well as its substantive outcomes to ensure useful data.

1) Summarize the findings of alumni self-assessment of success in achieving competencies and ability to apply competencies after graduation. (self-study document)

The school collects quantitative and qualitative data from alumni on their ability to achieve and apply the competencies from their degree program through two key methods: an annual School Survey and focus groups.

The annual School Survey is administered to alumni, employers, faculty, staff, and students each fall. The survey is designed to take the pulse of the SPH community, gather feedback regarding programming and resources, and identify areas of strength and improvement for the school. Survey results are reported back to the SPH community at School Assembly and department-specific reports are generated for the chairs and associate chairs. The school utilizes the data collected, especially from more recent graduates, to make curricular updates. These updates are determined by the Education Committee, discussed with the Governing Council, documented in committee meeting minutes, and described to the school community at monthly School Assemblies. Shortly after the results are tallied, the process of revising the survey for the following year begins a collaborative process with the department chairs, associate chairs, program directors, Student Senate, the Education Evaluation Subcommittee, alumni and community advisory boards, and central administrative offices.

The School Survey asks alumni to identify how confident they are in their ability to apply the SPH program competencies and specific degree competencies in a professional capacity. Alumni are asked this question the year they graduate and two years post-graduation. In 2016, the vast majority of MPH alumni reported that they were highly confident or confident in their ability to apply the program competencies in the field:

- 84% were confident in their ability to identify the determinants of health and disease
- 75% were confident in their ability to estimate the burden and patterns of disease in communities in order to prioritize health needs
- 74% were confident in their ability to use systematic approaches to develop, implement, and evaluate public health policies, programs, or services
- 83% were confident in their ability to communicate effectively to promote the health of all members of our communities, especially the disadvantaged, underserved, and vulnerable.
- 83% were confident in their ability to demonstrate the ability to access and use data to identify and solve public health problems
- 95% were confident in their ability to demonstrate the ability to work independently and as part of a team, and identify effective leadership qualities and practices
- 89% were confident in their ability to make decisions that reflect ethical frameworks and respect for the values, beliefs, and practices within diverse communities and cultures
- 91% were confident in their ability to demonstrate professional knowledge and skills for effective practice in a selected field of study.

Alumni focus groups are held at the annual American Public Health Association (APHA) meeting and at other major professional conferences where SPH has a substantial alumni presence. The focus groups are used to gather information on alumni perceptions in three areas:

- Understanding the application of their degree to various public health career paths;
- Examining areas of focus in future public health training to ensure graduates are prepared to meet the needs of the public health field; and,
- Determining areas for further engagement, including learning opportunities, of alumni with the school.

During the 2017 APHA focus groups, for example, participant feedback focused on five major themes:

- Participants appreciated the practice-based requirements and opportunities, including courses, practicum, and fellowships, and reported they were good preparation for the challenges of practicing public health.
 - SPH's partnership with the Boston Public Health Commission and international practicum experiences were highlighted
 - Alumni who worked while attending classes noted the experience was challenging, but that the practice-based experiences helped them grow as public health professionals
- Alumni stressed the importance of leadership skills in the field. Many felt they did not take advantage of the leadership training opportunities offered SPH. Those who did take part in leadership training wished they had taken it more seriously.
- Critical thinking, strong writing, qualitative and quantitative data analysis, self-reflection, and collaboration were identified as the most valuable skill sets by recent graduates.
 - Recent graduates noted the need to develop their critical thinking skills, citing that the field requires constant self-reflection and processing in order to become a better public health thinker.
 - Participants felt that communication skills are critical. Professionals need to be able to write in a concise and coherent manner, present effectively to various audiences, and even consider learning a second language. Many found learning Spanish was especially helpful in their careers.
 - A diverse set of research skills are in high demand, including data collection and analysis, program evaluation, grant writing, and project management.
- Many participants expressed the need for an easier way to connect with alumni in their area, particularly those who did not live in a major city. There was also interest in connecting with alumni from other schools of public health.
- Most alumni had not yet heard of the Population Health Exchange (PHX), SPH's lifelong learning initiative (this is not surprising given the relative newness of the program), but were excited by the potential to engage in continuing educational opportunities, both online and in-person, through PHX.

2) Provide full documentation of the methodology and findings from alumni data collection. (electronic resource file)

The School Survey alumni survey and findings are available as [ERF B4.2.1](#).

Results from alumni focus groups are available as [ERF B4.2.2](#).

3) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)

The School Survey is a comprehensive data collection tool that creates an important feedback loop for SPH stakeholders. In order to maximize response rate, only one survey is administered to the school community each year and the school has a structured communication plan in place to ensure the survey is reaching students, alumni, faculty, and staff through a variety of channels. Despite these efforts, response rates for students and alumni from the MA/MS, DrPH, and PhD continue to be low and the school is investigating how to increase the number of responses.

Staff from the school's lifelong learning initiative, PHX, attend alumni events to highlight opportunities for re-engagement of alumni and to solicit ideas for new programming. PHX also has a newsletter and is signing up alumni to stay engaged and informed about program opportunities.

The school recently adopted the CEPH competencies listed in criterion **D2** as the program competencies for the MPH. The addition of twenty-seven competency achievement questions in the School Survey may be burdensome to alumni and may impact the survey completion rate. Competency mastery will then have to be the majority of the focus group discussion, limiting the collection of feedback on other aspects of the SPH experience.

B5. Defining Evaluation Practices

The school defines appropriate evaluation methods and measures that allow the school to determine its effectiveness in advancing its mission and goals. The evaluation plan is ongoing, systematic and well-documented. The chosen evaluation methods and measures must track the school's progress in 1) advancing the field of public health (addressing instruction, scholarship and service) and 2) promoting student success.

1) Present an evaluation plan that, at a minimum, lists the school's evaluation measures, methods and parties responsible for review. (self-study document)

Evaluation is a formal, ongoing activity at the school, overseen by the Governing Council (GC). As described in criterion **B1**, the school's strategy map outlines goals, measures, targets, and tactics in ten areas that align with the mission, values, and core purpose. These ten areas address the school's progress in advancing the field and promoting student success through leading local, national, and international public health conversations; training the next generation of public health professionals; conducting scholarship of consequence; and improving the public's health through service. The strategy map also identifies administrative and operational goals for the school.

Progress towards achieving the measures identified on the strategy map is the responsibility of the GC. Each fall, the GC reviews data on the progress towards achieving the measures detailed on the strategy map, available as **ERF B1.2.1**. The committee then discusses resource allocation and activities to improve the progress toward meeting the measures. The strategy map is a living document and is updated as needed with input from various stakeholders.

As described in criterion **B1**, the school's education, practice, and research evaluation plans intentionally overlap with and build on the school's strategy map. These evaluation plans are monitored by the Educational Evaluation Subcommittee (EES) (a subcommittee of the Education Committee), the Research Committee, and the Practice Committee. This designed overlap allows both for wide input from the faculty, staff, and students who serve on these committees and school leadership on the GC. The associate deans chair the standing committees and sit on the GC and serve as the bridge between the committees.

The school's evaluation measures reflect the core purpose to think, teach, and do for the health of all, as well as build the administrative structures to support the education, research, and service missions. Selected goals and measures related to student success and advancing the field are presented in Table B5.1.1.

B5.1.1. Selected Evaluation Measures from SPH Strategy Map and Evaluation Plans

Evaluation measures	Data collection method for measure	Evaluation Plan	Responsibility for review
Accreditation: Prepare for 2018 reaccreditation; be reaccredited for full 7-year term			
Data collection systems	Process measure – met	Strategy Map	GC
Evidence-based improvement plans for education, research, and service	Process measure – met	Strategy Map	GC, Education Committee, Research Committee, Practice Committee
In the World: Position BUSPH as a leading school of public health			
School ranking	US News & World Reports	Strategy Map	GC

Evaluation measures	Data collection method for measure	Evaluation Plan	Responsibility for review
Countries connected through research, donors, students, and alumni	Annual Faculty Review, Darwin, UIS	Strategy Map	GC
Mirror to Self: Strategically evaluate BUSPH's operations and activities; build capacity as necessary			
Minority faculty, staff, and students	SAP, UIS	Strategy Map	GC
Fully covered faculty	SAP	Strategy Map	GC
External funding per faculty	SAP	Strategy Map	GC
The Next Generation: Train the next generation of public health professionals			
Qualified students (new enrollments)	WebAdmit	Strategy Map	GC
Enrollment in lifelong learning programs	Lifelong Learning records	Strategy Map	GC
Fully funded doctoral students and post-docs	UIS; SAP	Strategy Map; Research Evaluation Plan	Research Committee which reports findings to GC
Students participating in scholarship	Masters students: School Survey; doctoral students: annual report	Strategy Map; Research Evaluation Plan	Research Committee which reports findings to GC
The extent to which BU MPH students acquire knowledge and skills in the integrated core course curriculum	Pre- and post-course surveys assessing knowledge acquisition; follow-up surveys and qualitative focus groups/interviews assessing application of knowledge and skills learned in the integrated core courses to the next level courses	Educational Evaluation Plan	EES which reports findings to Integrated Core Course faculty and the Education Committee which reports findings to the GC
The extent to which certificate and foundational competencies are achieved at the completion of the degree	Course evaluations on all SPH courses; Integrative Learning Experience (ILE) assessments including certificate-specific ILE evaluations, reflections questions, standardized grading rubrics	Educational Evaluation Plan	EES which reports findings to the Education Committee, which reports findings to GC

Evaluation measures	Data collection method for measure	Evaluation Plan	Responsibility for review
The extent to which the BU MPH prepared graduates for the public health workforce	School Survey, 6-month Career Services and Practicum Office survey, alumni focus groups, Career P.R.E.P. evaluation (pre-, post- and one year follow-up surveys)	Educational Evaluation Plan	EES which reports findings to the Education Committee, which reports findings to GC
Proportion of faculty working with students on research	Annual Faculty Review	Research Evaluation Plan	Research Committee which reports findings to GC
Investment in the Future: Ensure BUSPH is positioned for long-term financial stability			
Alumni who donate	Darwin	Strategy Map	GC
Size of endowment	SAP	Strategy Map	GC
Dean in the World events	Dean's Office records	Strategy Map	GC
Research pilot awards given annually	Research Office records	Research Evaluation Plan	Research Committee which reports findings to GC
The Public Health Conversation: Lead the public health conversation locally, nationally, and globally			
Signature events/year	Dean's Office records	Strategy Map	GC
Media/social media imprint	IS&T; Communications records	Strategy Map; Research Evaluation Plan	GC; Research Committee which reports findings to GC
Public Health Leadership: Provide leadership across sectors to improve public health			
High-level public health leadership conversations	Dean's Office records	Strategy Map	GC
Annual leadership conference	Dean's Office records	Strategy Map	GC
Program Innovation: Create innovative public health programs in research, education, and service			
Public/private or cross-sector partnerships for engagement and service	Annual Faculty Review	Strategy Map	GC
School-wide programmatic focus on strategic research directions	Dean's Office records	Strategy Map	GC
Scholarship of Consequence: Publish and present frequently cited scholarship			
Average citations per faculty	Academic Analytics	Strategy Map; Research Evaluation Plan	Research Committee which reports findings to GC
Professional presentations by faculty	Annual Faculty Review	Strategy Map; Research Evaluation Plan	Research Committee which reports findings to GC

Evaluation measures	Data collection method for measure	Evaluation Plan	Responsibility for review
Faculty on editorial boards	Annual Faculty Review	Strategy Map; Research Evaluation Plan	Research Committee which reports findings to GC
Grant submissions and awards, annually	SAP	Research Evaluation Plan	Research Committee which reports findings to GC
Activist Public Health: Improve the public's health through service to the local, national, and global community			
Funded community-based grants	SAP/Annual Faculty Review	Strategy Map; Practice Evaluation Plan	Practice Committee which reports findings to GC
Service projects conducted annually by faculty, staff, and students	Annual Faculty Review; School Survey	Strategy Map; Practice Evaluation Plan	Practice Committee which reports findings to GC
Faculty leadership/ advisory roles on community board or health organization, locally or globally	Annual Faculty Review	Strategy Map; Practice Evaluation Plan	Practice Committee which reports findings to GC

2) Briefly describe how the chosen evaluation methods and measures track the school's progress in advancing the field of public health (including instruction, scholarship and service) and promoting student success. (self-study document)

As described in criterion **B1**, the school's evaluation methods and measures are designed to further the mission to improve the health of local, national, and international populations, particularly the disadvantaged, underserved, and vulnerable, through excellence and innovation in education, research, and service. This mission will only be accomplished through advancing the field of public health and training the next generation of public health practitioners and scholars.

The school's evaluation goals and measures are specific and measurable, and the school's Governing Council has a formal process for allocating resources and initiating new programs and activities in order to further these goals. The evaluation plans rely on both quantitative and qualitative results to provide a comprehensive and multi-dimensional response to the evaluation questions and progress towards meeting the goals is measured at least annually. The evaluation plans are living documents and are updated as needed based on changing student needs and changes to the ever-evolving field of public health.

The educational evaluation plan is explicitly designed to measure student success, first through measuring student's ability to acquire knowledge and skills from the core curriculum, then how students translate those skills to specialization courses, and finally in students' preparedness for the workforce. The educational evaluation plan seeks to advance the field of public health through ensuring the school is training the next generation of public health practitioners and scholars, and to provide an evidence base and scholarship surrounding public health educational evaluation. With a current focus on the BU MPH, the educational evaluation plan uses qualitative and quantitative data collection strategies to assess short-term, intermediate, and long-term outcomes of each curricular component of the degree.

Specifically, the extent to which BU MPH students acquire knowledge and skills in the integrated core course curriculum is assessed for both process measures and short-term outcome measures. Process measures include:

- Mid-semester surveys for implementation information, satisfaction, level of engagement and time invested in the course, appropriateness of level of instruction, and applicability of materials.
- Ad-hoc interviews and regular meetings with integrated core curriculum faculty to assess fidelity of course implementation, student engagement and feedback, faculty perspectives and satisfaction, and appropriateness of assessments and materials.
- Follow-up interviews and focus groups with faculty and teaching assistants measuring barriers and facilitators of implementation, perceptions of student readiness, appropriateness of assessments and materials, and integration of course content and collaboration across disciplines.

Short-term outcome measures include:

- Student pre-course and post-course survey measuring achievement of knowledge and skill-based competencies, satisfaction with the course, integration of concepts and content across the four core courses, and perceptions of readiness for next level courses.
- Follow-up interviews and focus groups measuring application of knowledge and skill-based competencies, application of interdisciplinary concepts and content, and reported readiness for next level certificate courses.

The extent to which certificate and foundational competencies are achieved at the completion of the degree are examined for both process and outcome measures with process measures mirroring the data collection strategies used for the integrated core curriculum. The outcome measures for the certificate evaluation are assessed at the intermediate outcome time point. Process measures include:

- Interviews, focus groups, and regular meetings with Certificate Leads to assess certificate courses (i.e., appropriateness of courses, sequencing of courses, variety of courses), barriers and facilitators of advising, appropriateness of ILE project, and overall perceptions of the certificate including relevance to the field.

Short-term outcome measures include:

- Course evaluations measuring achievement of learning objectives, satisfaction with the course content, satisfaction with course teaching, academic rigor, and overall perceptions of the course.
- Specific questions related to the type of course (introductory versus advanced), type of pedagogy (case method, lecture, practice-based teaching), and type of assessments (written, oral, exams, group work).

Intermediate outcome measures include:

- ILE certificate-specific student evaluation including achievement of certificate competencies, experience with advising, appropriateness of ILE, variety of certificate offerings, and application of curricular components to the certificate
- ILE reflection questions measuring application of certificate competencies for comparison across certificates.
- Standardized grading rubrics that apply to all ILE projects within each certificate.

The extent to which the BU MPH curriculum prepared graduates for the public health workforce is measured 6 months to 5 years post-graduation of the program to assess readiness, satisfaction, and success in public health. Outcomes measures include:

- The Annual School Survey that assesses application of program competencies in a professional capacity.
- Alumni focus groups assessing appropriateness of certificate offerings, breadth of public health training, gaps in training, resources useful for career success, and future directions of the field.

- Career P.R.E.P. evaluation, which includes pre-, post-, and one-year follow-up course surveys to assess achievement and application of skills to secure a job and be a successful public health practitioner (i.e., salary negotiation, interviewing, networking, resume and cover letter preparation, etc.).

3) Provide evidence of implementation of the plan described in B5.1. Evidence may include reports or data summaries prepared for review, minutes of meetings at which results were discussed, etc. Evidence must document examination of progress and impact on both public health as a field and student success. (electronic resource file)

Evidence of implementation of the school's evaluation plans is available in the electronic resource files:

- SPH Strategy Map: [ERF B5.3.1](#)
- Educational Evaluation Plan: [ERF B5.3.2](#)
- Practice Evaluation Plan: [ERF B5.3.3](#)
- Research Evaluation Plan: [ERF B5.3.4](#)

4) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)

The school's evaluation plans are designed to address the school's mission, and to promote student success and advancing the field of public health are essential to achieving that mission. Evaluation is a formal, ongoing activity that draws on faculty expertise from across the school, engages key stakeholders including students, alumni, and community members; and reflects local and national trends in higher education, research administration, and best practices in service.

A particular strength of the school's evaluation plans is the educational evaluation plan, which, to our knowledge, is the largest educational evaluation being conducted at a school of public health. The rigorous mixed method design of the evaluation uses both qualitative and quantitative data to assess the acquisition and application of competencies at several time points including during MPH training and after graduation and for all curricular components. The evaluation relies on active engagement of multiple stakeholder groups and results are being disseminated at SPH, at BU, and at national public health and educational assessment conferences.

The weaknesses in this approach are a by-product of the strengths. In particular, conducting this large-scale evaluation, which will soon be used for all of the school's degree programs, is resource-intensive. The evaluation design follows best practices from the field - a rigorous evaluation that provides information on implementation and achievement of short-term, intermediate, and long-term outcomes which may then inform the field and allow for program/policy improvements. The data gathered through this approach is rich, allowing the school to continuously improve to best prepare students for public health careers. The EES continues to test and improve its evaluation methods and tools and plans to expand these methods to all degree programs.

B6. Use of Evaluation Data

The school engages in regular, substantive review of all evaluation findings, as well as strategic discussions about the implications of evaluation findings.

The school implements an explicit process for translating evaluation findings into programmatic plans and changes and provides evidence of changes implemented based on evaluation findings.

1) Provide two to four specific examples of programmatic changes undertaken in the last three years based on evaluation results. For each example, describe the specific evaluation finding and the groups or individuals responsible for determining the planned change, as well as identifying the change itself. (self-study document)

Evaluation findings are reviewed by the respective committees (education, research, practice) annually and summarized for the GC. The GC reviews the evaluation findings and determines strategic and tactical actions. Programmatic changes that have occurred have been based on solid evaluation results. Examples of these changes are highlighted below.

The educational evaluation has yielded numerous programmatic changes, including key changes to the core curriculum. In Spring 2016, the school offered a pilot version of the integrated core courses for approximately 20 students. These pilot courses were evaluated from both a process and outcome perspective and produced valuable information that resulted in course corrections and revisions before the full implementation in Fall 2017. One specific example was that the structure of the integrated core curriculum as initially conceived - four core courses plus a lab for each course, resulting in eight in-class sessions during the week - was too much time in class and didn't allow students the opportunity to work in teams outside of class or sufficient time to complete assignments. This was uncovered through the mid-semester survey and post-course survey. Qualitative data collection (focus groups, interviews) provided more description around this issue, including that labs were most effective when focused on the application of knowledge and skills rather than as an opportunity to deliver more content. Pre-and post-quizzes and midpoint surveys were reviewed by the Education Evaluation Subcommittee and findings were reported back to the Integrated Core Course Directors and Education Committee. The Core Course Directors revised the courses accordingly and re-trained the rest of the faculty on these changes. The Fall 2017 core course evaluations resulted in the school adding teaching assistants to each course so that students could have additional contact with the teaching team and enhanced group work experiences, refining learning outcomes to more accurately correspond to the competencies being addressed by the course, and including of cross-disciplinary case studies that allowed multiple core courses opportunities for synthesis and discussion.

The research evaluation plan focuses on three areas, one of which is the scholarly productivity of SPH faculty. In examining how to facilitate faculty engagement in research, the school identified two key areas for improvement: pilot funding and faculty mentoring. In 2009, the school formed a modest (\$80,000) pilot awards program, which awarded grants for \$6,000 to \$10,000. Faculty often learned about the pilot grant opportunity through informal communication or departmental meetings and applied for awards on a rolling basis. As part of the research evaluation efforts, the Research Committee examined the productivity of past pilot award recipients, most of whom had leveraged the funds into significantly larger grants, a goal of the pilot program, and produced a number of well-cited publications and presentations, both of which are evaluation measures. Along with generous donations from external funders, the school increased pilot award funding to \$320,000 in 2016. Faculty investigators may now apply for grants up to \$20,000 for either Early Career Catalyst Awards or Established Investigator Awards, or larger funds to support the development of large center grants or big data analysis. There have also been a number of administrative improvements to the program, including a communication plan, which notifies all faculty of award opportunities, setting priority deadlines along with accepting

rolling applications, and consolidating the pilot projects into a central fund, which allows all departmental financial administrators and the research office to check balances and monitor progress.

In the area of faculty mentoring, SPH recently launched a structured mentoring program, a grant writing workshop, and education retreats to mentor faculty in the evaluation metrics related to scholarship and education. The faculty mentoring program offers support to faculty in excelling at teaching and research, developing professional networks, achieving career goals, positioning the faculty member for promotion, orienting the faculty member to SPH, and promoting work/life balance. Faculty mentees form a mentoring team comprised of mid-career and senior faculty who align with the faculty member's interests and career goals. The program is required for the first three years of an early career faculty member's appointment at SPH and is open to any SPH faculty member who is interested. The program is closely monitored by the Faculty Development Committee and will be updated as appropriate. The faculty grant writing workshop provides a forum for a cohort of junior faculty to work through each part of the grant writing process, from concept to finalized proposals. Facilitated by two senior faculty, the workshops are held over the course of the semester and culminate in a mock grant review by senior faculty across the school. Success rates from workshoped grants are tracked so that the program can adapt as needed. Finally, the school offers two school-wide education retreats annually and monthly teaching collaborative meetings to discuss best practices in teaching. These workshops highlight innovative and best practices in pedagogy and how to best integrate and address diversity and inclusion in the classroom.

Finally, the strategic thinking process resulted in measuring community-based grants on the strategy map and service evaluation plan. In the process of collecting data to address this measure, the school consulted the Community Committee, which is convened by **the Activist Lab** and whose membership includes residents of subsidized public housing in Boston. The ongoing role of the Community Committee includes providing feedback on research projects conducted by SPH faculty addressing health concerns of residents of public housing. Such feedback provides valuable input into the conduct of community-based research, improving the protocols not only to increase the acceptability and utility of the project to the community, but also to enhance the validity and generalizability of the results. For example, in a project to improve the health of residents by decreasing the consumption of sugar-sweetened beverages and to improve adherence to the no smoking policy, residents provided critical feedback about the specific target populations to include in the project, the survey tool itself, and the implementation of the survey distribution methods. Specifically, the Community Committee provided insight into the concerns of residents relating to confidentiality and follow-up. The changes made to the protocol based on this feedback dramatically improved expected response rate and validity of the survey. Another research project used Photovoice to inform a community-based diabetes intervention. Feedback from the Community Committee yielded a reallocation of resources within the project budget to assure that data were collected in both English and Spanish. Without such input, the study would not have included many of the most at-risk residents.

2) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)

The school conducts in depth evaluations of education, research, and service, and the results of those evaluations are used to inform program modifications. These evaluation plans take into account the perspectives of multiple stakeholders and advisory boards, as appropriate. Progress toward meeting the evaluation measures are examined on a structured schedule, allowing for a regular cycle of programmatic changes and resource allocations, which are communicated to the SPH community.

As indicated in criterion **B5**, the school's educational evaluation plan is a particular strength, facilitating an in-depth look at SPH's largest degree program. The educational evaluation was designed with substantial input from faculty across the school and results have been used to make significant revisions

to the BU MPH. SPH's educational evaluation design is forward thinking; evaluation activities from the BU MPH will be adapted for the MS and doctoral programs. The school seeks to be transparent in its evaluation efforts and the results of the educational evaluation are shared with core course directors and certificate directors, and at national conferences such as the [American Public Health Association \(APHA\)](#) annual meeting and at the [Association for the Assessment of Learning in Higher Education \(AALHE\)](#) annual meeting.

While the school does not perceive any difficulties translating evaluation findings into programmatic updates, reaching consensus outside of direct stakeholders and communicating to all members of the SPH community and community partners in a timely manner can be challenging. SPH currently works with the stakeholders directly involved in the change (for example, the core course faculty when considering changes to the core) but this may cause downstream ripples that can be difficult to anticipate.

C1. Fiscal Resources

The school has financial resources adequate to fulfill its stated mission and goals. Financial support is adequate to sustain all core functions, including offering coursework and other elements necessary to support the full array of degrees and ongoing operations.

1) Describe the school's budget processes, including all sources of funding. This description addresses the following, as applicable:

- a) Briefly describe how the school pays for faculty salaries.
- b) Briefly describe how the school requests and/or obtains additional faculty or staff (additional = not replacements for individuals who left).
- c) Describe how the school funds the following: a. operational costs (schools define "operational" in their own contexts; definition must be included in response) b. student support, including scholarships, support for student conference travel, support for student activities, etc. c. faculty development expenses, including travel support.
- d) In general terms, describe how the school requests and/or obtains additional funds for operational costs, student support, and faculty development expenses.
- e) Explain how tuition and fees paid by students are returned to the school.
- f) Explain how indirect costs associated with grants and contracts are returned to the school and/or individual faculty members.

(self-study document)

SPH is set up as a revenue center within the university, and as such collects and retains all of its revenues, including tuition income, indirect costs recovered from sponsored research, and income derived from special programs and endowment payout funds. Like all schools and colleges within Boston University, SPH must maintain an annual balanced budget and have the resources required to fulfill the school's mission and goals, which it has successfully achieved throughout its 41-year history. The strategic planning and allocation of funds is determined by the Dean, with assistance from the Associate Dean for Administration who analyzes, monitors, and reports on all financial activity for the school.

Faculty salaries are paid through a combination of school funds, which cover effort dedicated to teaching, administrative duties, and service to the school, as well as sponsored research and gift funding, which may cover the portion of their effort dedicated to research and scholarship activities. The breakdown of individual faculty salary coverage is determined each year through a process that combines the faculty performance review and detailed budget review. Based on an individual's upcoming teaching, research, and service, a breakout of individual faculty salary coverage is determined in consultation with the Dean, department chairs, the associate deans, and unit area heads for the upcoming year. These salary determinations represent the most significant portion of the school's overall operating budget. Primary faculty salaries are guaranteed through rolling contracts, and the school covers faculty salaries in full in the case of dips in sponsored funding or changes in course offerings.

To achieve this balanced and secure faculty funding, each academic department is provided with a "bridge account" designed to capture any uncovered faculty salaries due to fluctuations in research or teaching load. These accounts are reviewed monthly by the Associate Dean of Administration, together with the department chairs and Dean, in order to monitor and strategically plan for budget variances and new research and/or teaching opportunities that may be utilized to cover these costs.

Academic departments and centers, central administrative operations, as well as building operations are considered operational units. Each operational area of the school is budgeted and funded annually based on its scheduled activities and broader mission and goals. Operational costs include all school-related, non-sponsored items including faculty and staff salaries, furnishings, supplies, travel, etc. It is during this budget process that requests for additions to faculty and staff FTEs are made and discussed.

As an independent revenue center, the school may add additional faculty lines with approval from the SPH leadership team, a process which is documented in the school's Appointment and Promotions Guidelines. In addition, ad hoc requests may be made throughout the year through a request proposal that outlines the need and justification for the position.

The largest budgetary unit of the school is the education budget, which includes the Education Office, Graduate Student Life, the Admissions Office, the Registrar's Office, Career Services and Practicum Office, and Lifelong Learning, also called Population Health Exchange (PHX). Budgets for each of these groups are based on historic operating costs, student enrollment, and upcoming programmatic needs. Funds to cover the costs associated with supporting the broad teaching and student services functions of the school are supported mainly by tuition income, reside in the education operating budget, and are overseen directly by the Associate Dean for Education. This also includes student financial aid, to which the school dedicates 25% of its annual tuition income. In addition to direct tuition scholarships, student support comes in a variety of forms at SPH, including travel scholarships, school-funded social and educational activities, and special funds set aside for computer purchases, repairs, upgrades, software, and other need-based supplies. These funds are administered to students through Graduate Student Life and many individual academic departments also provide additional student support for stipends, supplies, travel and other needs through special gifts and grant mechanisms such as the NIH T32.

The Research and Faculty Advancement Office supports the activities around faculty hiring, onboarding, research, and continued professional development. Each faculty member who is at least 50% time at SPH receives \$2000 of annual discretionary funds for professional development. Together with the Research Committee, the office also manages pilot funds, designed to launch junior faculty members' careers and assist senior faculty prove proof of concept. Pilot funds may be awarded for innovation in education or research. In addition, funds to cover professional development activities such as management training and grant-writing workshops are included in this budget.

The central administration of the school is funded entirely through school funds and serves the entire school community. The school recently expanded many of the functions and services offered by the central administration to support our new programming as well as the growing population of the school. In direct response to the recent growth in our educational and research programs, the school expanded central finance, human resources, communications, research administration, and faculty services to better serve the community.

The combined sources of school revenues (tuition income, IDC, gifts and endowment payouts) support the school in its entirety. The Dean's Reserves are funds intended to support new initiatives, fluctuations in the economy, major renovations to physical plant, and other special activities, and are managed exclusively by the Dean to provide long-term financial stability and benefits to the school.

2) A clearly formulated school budget statement, showing sources of all available funds and expenditures by major categories, for the last five years. (self-study document)

Table C1.2.1. Sources of Funds and Expenditures by Major Category, FY14 to FY18

	Year 1 FY14	Year 2 FY15	Year 3 FY16	Year 4 FY17	Year 5 FY18 ²³
Source of Funds					
Tuition & Fees	34,207,807	34,060,713	35,848,643	35,037,718	41,203,244
State Appropriation					
University Funds					
Grants/Contracts	30,389,090	30,213,128	31,741,586	35,215,166	31,366,656
Indirect Cost Recovery	8,012,618	8,202,260	8,809,309	9,874,713	9,746,209
Endowment Spendable	189,820	188,197	251,157	196,142	160,220
Gifts	391,376	485,925	340,838	339,612	771,276
Other (designated funds)	2,304,179	4,124,388	8,393,315	8,994,227	4,973,808
Other (Dean's Reserve)			(1,548,081)	(3,562,579)	(1,173,275)
Total	75,494,890	77,274,611	83,836,767	86,094,999	87,048,138
Expenditures					
Faculty Salaries & Benefits	22,518,142	24,835,997	24,555,216	25,957,055	27,003,611
Staff Salaries & Benefits	16,153,784	16,768,737	18,590,748	20,008,168	18,518,653
Operations	14,905,621	14,585,587	16,891,996	19,237,614	17,705,012
Travel	911,155	1,123,849	1,374,634	1,773,402	1,580,338
Student Support	8,353,828	8,734,077	9,121,262	8,119,861	10,200,000
University Tax	550,929	2,411,384	2,480,751	2,518,402	3,528,394
Other (transfer out)	2,597,399	535,677	2,525,000	(4,677)	
Other (campus costs)	9,504,032	8,279,303	8,297,159	8,485,174	8,512,130
Total	75,494,891	77,274,611	83,836,767	86,094,999	87,048,138

3) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)

There are abundant strengths and weaknesses of any given approach towards funding schools of public health. The SPH model is one with substantial budgetary authority and commensurate responsibility, as noted in criterion A4. The principal strength to this model is that at the end of the day, SPH has wide berth over strategic directions and aligning a budget with its self-determined strategic goals and aspirations. This has proven critical for a school of this size and history, allowing the school to make bold strategic moves when it needed to do so. In the past three years, for example, it has allowed SPH to articulate a strategic plan that built on the school's history and paved a way for growth in future, and then to follow-up that plan with strategic restructuring of the school and hiring that aligns with that

²³ Projections. Data will be revised for the final self-study.

strategic plan. It is hard to see how this could have been achieved in any other financial model on this short a timeframe.

Clearly, the downside of this financial model is the responsibility that lies with the school and the Dean, for any strategic missteps and shortfalls. In some ways, the school is more dependent on the judgement of the Dean and leadership team than are other schools that are centrally budgeted and can lean on the judgement and administrative backing of the rest of university. If done right this can be a strength, but one can well see this being a liability. The school also contributes to the Medical Campus and the Charles River Campus for shared services. In many ways this is cost-effective, allowing the school to participate in services more cheaply than SPH would be able to procure independently (e.g., security), while in others SPH is limited if the central services are not as efficient for the cost as they might be with outside vendors. While SPH is not limited to having to use central services, there are often too many complexities in the centrally administered resources and how enmeshed they are in the school to make it realistic to seek outside vendors. This brings with it also strengths and weaknesses.

C2. Faculty Resources

The school has adequate faculty, including primary instructional faculty and non-primary instructional faculty, to fulfill its stated mission and goals. This support is adequate to sustain all core functions, including offering coursework and advising students. The stability of resources is a factor in evaluating resource adequacy.

Primary instructional faculty, as defined in these criteria, provide the basis for initial levels of review of the adequacy of a school's resources. This criterion employs a three-step review (outlined in C2-A through C2-C) in assessing adequacy of faculty resources.

Definitions

Primary instructional faculty must meet BOTH requirements outlined below:

- Employed full-time as faculty members appointed in the school (ie, 1.0 FTE in the unit of accreditation). The school uses the university's definition of "full-time." Individuals appointed in the school with honorary appointments in other disciplines or occasional teaching/advising duties outside the school may count as primary instructional faculty members in some circumstances, but the primary expectation of the individual's employment must be activities associated with the school.
- Have regular responsibility for instruction in the school's public health degree programs as a component of employment. Individuals whose sole instructional responsibility is advising individual doctoral or research students do not meet CEPH's definition of primary instructional faculty, nor do faculty whose regular instructional responsibilities lie with non-public health degrees within the school, if applicable.

C2-A. Minimum faculty requirement by accreditation unit

Schools employ, at a minimum, 21 primary instructional faculty.

C2-B. Minimum faculty requirement by range of offerings

Students' access to a range of intellectual perspectives and to breadth of thought in their chosen fields of study is an important component of quality, as is faculty access to colleagues with shared interests and expertise.

To provide this basic breadth and range and to assure quality, schools employ, at a minimum, three faculty members per concentration area for the first degree level offered.

Each additional degree level in a concentration requires the addition of one faculty member. Thus, a concentration area that solely offers master's degrees requires three faculty members. A concentration offering bachelor's and master's degrees OR master's and doctoral degrees requires four faculty members. A concentration with bachelor's, master's and doctoral-level degrees requires a minimum of five faculty members.

Definitions and specifications are as follows:

The three faculty per concentration for the first degree level include the following:

- Two primary instructional faculty members
 - These individuals may count among the two faculty (or additional faculty required for adding a degree level) in no more than one additional concentration.
- One additional faculty member of any type (faculty from another university unit, adjunct faculty, part-time faculty or primary instructional faculty associated with another concentration area).

The additional faculty member required for adding a degree level in a concentration area must be a primary instructional faculty member.

All identified faculty must have regular instructional responsibility in the area. Individuals who perform research in a given area but do not have some regular expectations for instruction cannot serve as one of the three to five listed members.

All identified faculty must be qualified to provide instruction in the concentration area, as defined in Criterion E1.

Criterion E assesses an individual's qualifications vis-à-vis his or her association with a concentration, degree level and type of degree (eg, professional or academic).

C2-C. Faculty resource adequacy, beyond minimum eligibility

In addition to meeting the minimum quantitative standards above, the size of the school's faculty complement is appropriate for the size of the student body and supports and encourages effective, regular and substantive student-faculty interactions.

The school documents the adequacy of the faculty complement through multiple quantitative and qualitative measures, including the following: advising ratios; availability of faculty to supervise MPH integrative learning experiences and doctoral students' final projects; and data on student perceptions of class size and faculty availability.

1) A table demonstrating the adequacy of the school's instructional faculty resources. The school need not list all faculty but must list sufficient faculty to demonstrate compliance with C2-B and C2-C. The data reflect the most current academic year at the time of the final self-study's submission and should be updated at the beginning of the site visit if any changes have occurred since self-study submission. (self-study document)

Table C2.1.1. Adequacy of the school's instructional faculty²⁴

CONCENTRATION	MASTER'S			DOCTORAL	ADDITIONAL FACULTY
	PIF 1	PIF 2	FACULTY 3	PIF 4	
Biostatistics	Paola Sebastiani 1.0	Yorghos Tripodis 1.0	Alexa Beiser 1.0	Josée Dupuis 1.0	PIF: 13 Non-PIF: 18
MA					
MS					
PhD	Jennifer Schlezinger 1.0	Junenette Peters 1.0	Birgit Claus Henn 1.0	Jon Levy 1.0	PIF: 12 Non-PIF: 7
Environmental Health					
MS					
PhD	Ann Aschengrau 1.0	Kim Shea 1.0	Daniel Brooks 1.0	Martha Werler 1.0	PIF: 8 Non-PIF: 33
Epidemiology					
MS					
PhD	Mari-Lynn Drainoni 1.0	Lewis Kazis 1.0	Kathleen Ryan 1.0	Kathleen Carey 1.0	PIF: 11 Non-PIF: 17
Health Services Research					
MS					
PhD	Monica Wang 1.0	Jessica Leibler 1.0	Madeleine Scammell 1.0	NA	PIF: 1 Non-PIF: 5
Public Health Nutrition					
MS	Candice Belanoff 1.0	Daniel Merrigan 1.0	Lois McCloskey 1.0	NA	PIF: 6 Non-PIF: 13
Community Assessment, Program Design, Implementation, & Evaluation					
MPH					

²⁴ Table will be updated for final self-study.

CONCENTRATION	MASTER'S			DOCTORAL	ADDITIONAL FACULTY
	PIF 1	PIF 2	FACULTY 3	PIF 4	
Design and Conduct of Public Health Research MPH	Timothy Heeren 1.0	Gina Peloso 1.0	Howard Cabral 1.0	NA	PIF: 4 Non-PIF: 2
Environmental Hazard Assessment MPH	Wendy Heiger-Bernays 1.0	Jean van Seventer 1.0	Thomas Webster 1.0	NA	PIF: 9 Non-PIF: 8
Epidemiology and Biostatistics MPH	Michael LaValley 1.0	Jacqueline Hicks 1.0	Lauren Wise 1.0	NA	PIF: 24 Non-PIF: 30
Health Communication and Promotion MPH	William DeJong 1.0	Carol Dolan 1.0	Michael Siegel 1.0	NA	PIF: 6 Non-PIF: 12
Health Policy and Law MPH	Alan Sager 1.0	David Jones 1.0	Wendy Mariner 1.0	NA	PIF: 8 Non-PIF: 12
Healthcare Management MPH	Chris Louis 1.0	David Rosenbloom 1.0	Lynn Garvin 1.0	NA	PIF: 5 Non-PIF: 16
Monitoring and Evaluation MPH	Peter Rockers 1.0	Nancy Scott 1.0	Andrew Stokes 1.0	NA	PIF: 7 Non-PIF: 9
Program Management MPH	Jen Beard 1.0	Taryn Vian 1.0	Rachael Bonawitz 1.0	NA	PIF: 12 Non-PIF: 13
Public Health Practice MPH, Executive	Jacey Greece 1.0	Megan Healey 1.0	Yvette Cozier 1.0	NA	PIF: 5 Non-PIF: 6

CONCENTRATION	DOCTORAL			ADDITIONAL FACULTY ⁺
	PIF 1*	PIF 2	FACULTY 3 [^]	
Leadership, Management, and Policy DrPH	Eugene Declercq 1.0	Harold Cox 1.0	Lora Sabin 1.0	PIF: 7 Non-PIF: 7

Table C2.1.2. Total faculty represented in Table C2.1.1.²⁵

	Headcount
Named PIF	52
Total PIF	120
Non-PIF	205

²⁵ Table will be updated for final self-study.

2) Explain the method for calculating FTE for faculty and evidence of the calculation method's implementation. All primary instructional faculty, by definition, are allocated 1.0 FTE. Schools must explain the method for calculating FTE for any non-primary instructional faculty presented in C2.1. (self-study document)

Boston University considers faculty with at least 75% effort to be full-time. All primary instructional faculty listed by name in Table C2.1.1 are 100% effort and additional primary instructional faculty have at least 75% coverage using a mix of education, research, and service activities that serve the school. Primary instructional faculty aligned with specific degree programs are qualified to provide instruction and advising in the specialization area due to their extensive research or experience in the field. The non-primary instructional faculty that are aligned with specific specializations have less than 75% coverage and are qualified to provide instruction and advising in the area. Non-primary instructional faculty include adjunct and secondary faculty appointments.

3) If applicable, provide a narrative explanation that supplements reviewers' understanding of data. (self-study document)

Not applicable.

4) Data on the following for the most recent year.

- a. Advising ratios by degree level, as well as the maximum and minimum.
- b. If applicable, average number of baccalaureate students supervised in a cumulative or experiential activity (not applicable)
- c. Average number of MPH students supervised in an integrative learning experience, as well as the maximum and minimum
- d. Average number of DrPH students advised, as well as the maximum and minimum
- e. Average number of PhD students advised, as well as the maximum and minimum
- f. Average number of academic public health master's students advised, as well as the maximum and minimum

(self-study document)

a. Advising ratios by degree level

As described in criterion H1, all SPH students are assigned a faculty advisor and may consult any faculty member at the school. Table C2.4.1 provides summary statistics on the number of students advised by faculty at each degree level. On average, PIF faculty advise 6.8 masters students and 2.2 doctoral students and on average, non-PIF advise 4.9 masters students and 5.6 doctoral students. The data presented in Table C2.4.1 is skewed by the faculty directors of masters of science and doctoral programs, who are assigned as advisors to all students in their respective programs. These students are also assigned unique faculty advisors whose interests align with their specific interests.

Table C2.4.1. Advising by degree level

Degree level	Average	Min	Max
Master's	6.92	1	21
Doctoral	2.03	1	9

As described in criterion H2, SPH has a highly skilled and active **Career Services and Practicum Office** that regularly advises students on how to align their educational programs with their career goals and prepare for their job search and employment.

Table C2.4.2. Career advising by degree level

Degree level	Average	Min	Max
Master's	125	110	135
Doctoral	12	1	3

c. MPH integrative learning experience advising

Table C2.4.3. Advising for the MPH integrative learning experience

Average	Min	Max
7	2	19

d. DrPH student advising

Table C2.4.4. Mentoring and primary advising on DrPH integrative learning experience

Average	Min	Max
1.83	1	5

e. PhD student advising

Table C2.4.5. Mentoring and primary advising on PhD dissertations

Average	Min	Max
1.47	1	3

f. Academic public health master's student advising

Table C2.4.6. Mentoring and primary advising on academic master's culminating project

Average	Min	Max
3.8	1	18

5) Quantitative data on student perceptions of the following for the most recent year:

- a. Class size and its relation to quality of learning (eg, The class size was conducive to my learning)
- b. Availability of faculty (ie, Likert scale of 1-5, with 5 as very satisfied)

(self-study document)

As part of the annual School Survey, students are asked their perception of class size and its relation to quality of learning and the availability of faculty on a five point Likert scale. In 2017, students reported the following:

- 86% of respondents strongly agreed or agreed that SPH class size was conducive to learning.
 - Master's level – 84%
 - Doctoral level – 100%
- 77% strongly agreed or agreed that their faculty advisor was accessible and available.
 - Master's level – 72%
 - Doctoral level – 100%

- 78% strongly agreed or agreed that their faculty advisor responded to emails and meeting requests within a reasonable amount of time.
 - Master's level - 76%
 - Doctoral level – 100%

The student results from the School Survey are available as [ERF C2.5.1](#).

6) Qualitative data on student perceptions of class size and availability of faculty. (Summary in self-study and full results/backup documentation in electronic resource file)

Students who responded to open-ended questions on class size and the availability of faculty expressed a range of viewpoints. When commenting on class size, some students felt classes were “reasonably sized”, and an “appropriate size for learning”. Others voiced concern that introductory courses should be smaller to encourage interactivity and classroom discussion. Several students highlighted that class enrollment did not adversely impact the learning environment.

Qualitative responses on faculty availability were fairly consistent. Most comments were positive, commending faculty responsiveness and flexibility. Several students mentioned their appreciation for the school’s open-door policy. However, several part-time students noted that their commitments outside of school made it challenging to meet with faculty.

The results of the School Survey are available as [ERF C2.5.1](#).

7) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)

The school has sufficient and qualified faculty to instruct the educational programs and advise students. Faculty and staff provide career advising to students, with trained career advisors providing the majority of the services.

The advising and educational needs of students has changed over time and in June 2017, the Dean’s Task Force on educational programs and teaching opportunities was formed to identify and address those needs through recommendations submitted to the GC. Faculty support and resources will be an important factor in the recommendations of the Task Force.

C3. Staff and Other Personnel Resources

The school has staff and other personnel adequate to fulfill its stated mission and goals. The stability of resources is a factor in evaluating resource adequacy.

“Staff” are defined as individuals who do not have faculty appointments and for whom staff work is their primary function. “Other personnel” includes students who perform work that supports the program’s instructional and administrative needs (eg, individuals who enroll first as students and then obtain graduate assistant or other positions at the university are classified as “other personnel,” while individuals hired into staff positions who later opt to complete coursework or degrees are classified as “staff”).

1) A table defining the number of the school’s staff support for the year in which the site visit will take place by role or function. Designate any staff resources that are shared with other units outside the unit of accreditation. (self-study document)

SPH employs 205 staff who support the school’s mission and goals. Table C3.1.1 indicates the headcount of staff by division and function.

Table C3.1.1. SPH Staff by Division and Function²⁶

Central Services	Staff Headcount
Activist Lab	9
Administration and Finance	7
Communications	6
Development and Alumni Relations	3
Education Team	
Admissions	5
Career Services and Practicum Office	9
Education Dean's Office	5
Graduate Student Life	3
Lifelong Learning	3
Registrar	2
Facilities and Operations	1
Faculty Resources	2
Office of the Dean	6
People Services	2
Research and Faculty Advancement	2
Sponsored Research Administration	1
Total	66

Departmental Support	Staff Headcount
Administrative Director	9
Administrative Assistant	7

²⁶ Data will be updated for the final self-study.

Educational Program Manager	5
Finance and Grant Management	8
Graduate Program Coordinator	1
Total	30

Research	Staff Headcount
Data Management and Statistical Analysis	17
Postdoctoral Associate	6
Research Assistant	24
Research Coordinator	8
Research Management	12
Research Project Administrator	4
Research Scientist/Fellow	12
Total	83

Service Center	Staff Headcount
Biostatistical and Epidemiology Data Analytic Center (BEDAC)	26
Total	26

Total SPH staff as of 2/5/18	205
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2) Provide a narrative description, which may be supported by data if applicable, of the contributions of other personnel. (self-study document)

Students have the opportunity to work while attending the School of Public Health. Students are able to explore opportunities on either campus and positions are typically research or administrative in nature. The university's **Student Employment Office (SEO)** works with enrolled degree-seeking students to assist in their part-time employment endeavors, whether through work-study program or student job service. In addition, students are encouraged to become a Teaching Assistant or Grader for courses at the School of Public Health. These roles are generally reserved for second-year students and hired directly by the academic department or faculty. Students also are employed as graduate research assistants to cultivate a relationship with a mentor and become more involved in the research mission.

The school also relies on the student support services available to all Boston University students, including the **Office of Financial Aid, University Registrar's Office, International Students and Scholars Office (ISSO), Disability Services, Student Health Services, Public Safety, the Dean of Students, and the Educational Resource Center**. Students learn of the availability of these resources through the admissions process, new student orientation, the **Student Dashboard**, and discussions with SPH faculty and staff.

3) Provide narrative and/or data that support the assertion that the school's staff and other personnel support is sufficient or not sufficient. (self-study document)

The school is well-staffed and organized to provide a full range of support services to the SPH community. Students are formally supported by staff in **Admissions, Alumni Affairs, Career Services and**

Practicum Office, Graduate Student Life, and the Registrar's Office, and may take advantage of the school's open-door policy, which makes all faculty and staff available as needed. Central Administration provides support to all members of our SPH community in organizational management, operational oversight, and leadership towards achieving the overall mission the school. As described in criterion E4, SPH research support is well-organized and sufficient to support the school's research activity.

4) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)

The school has strategically built its staff support over the last decade to support its evolving strategic mission. The 2010-2015 SPH strategic plan called for building career services and expanding both department and education office staff to support a growing student body. Fifteen staff have been hired since 2010 to achieve those goals, including eight additional staff in Career Services and Practicum Office who now support over 1,000 students and are available to all 9,500 alumni. A renewed strategic visioning process in 2015-2016 resulted in the current strategy map which guides both staff hires and staff organization in the present and going forward. Being responsive to the strategy map, over the last year, the school focused on enhancing the operational support and has strategically hired in finance, sponsored research, and staff development, and is staffed to make progress towards the goals outlined in the strategy map. SPH has also hired staff to develop Lifelong Learning and to support the revised MPH curriculum. Faculty hire staff to support their research programs as needed, and those staff are encouraged to take advantage of all staff resources at the school. SPH has a structured annual staff review process that aims to ensure that all staff are meeting their own personal growth needs and that their work is aligned with the goals and aspirations of the school. In addition, under the leadership of the Associate Dean of Administration, SPH launched a unit-by-unit operational review to ensure appropriate staffing in each unit of the school.

Finally, SPH is strongly committed to providing a supportive environment where all members of the community are encouraged to pursue opportunities for professional and personal development. A series of discussions with staff members in 2016 informed a suite of staff development opportunities which were launched in 2017. These programs are designed to appeal to a broad and diverse range of professionals, from early career to experience, and include a six-month innovative management workshop designed to meet the needs of established and emerging SPH leaders; skill-based trainings such as project management, effective communication, and influencing skills; and lunch and learn programs that are of specific interest to staff. The goal is for all staff to feel supported in their development, both personally and professionally. Additionally, as a complement the current offerings at SPH and Boston University, staff may apply for career development scholarships for funding for courses or other training experiences offered by professional organizations.

C4. Physical Resources

The school has physical resources adequate to fulfill its stated mission and goals and to support instructional programs. Physical resources include faculty and staff office space, classroom space, student shared space and laboratories, as applicable.

1) Briefly describe, with data as applicable, the following.

- Faculty office space
- Staff office space
- Classrooms
- Shared student space
- Laboratories, if applicable to public health degree program offerings

(self-study document)

The **School of Public Health** is located on the **Boston University Medical Campus** (BUMC). BUMC is located in the historic South End of Boston, and also includes the **Boston University School of Medicine**, the Henry M. Goldman **School of Dental Medicine**, and the **Division of Graduate Medical Sciences** of the School of Medicine.

As detailed on Table C4.1.1., SPH utilizes 150,000 square feet in eight buildings on the Medical Campus, all of which are within a 10-minute walk of one another.

The **Talbot Building** is the hub of SPH. Built in the 1800s as a hospital, Talbot has been home to the school since 1995 and houses the Dean's Office and three of the six academic departments: Environmental Health, Epidemiology, and Health Law, Policy, and Management. Talbot is also home to all student services, including the Education Office, **Admissions Office**, Registrar's Office, **Graduate Student Life**, and **Career Services and Practicum Office**. Talbot also offers students a dedicated student lounge and quiet study space, as well as areas for gathering and socializing.

The **Crosstown Center** is located at 801 Massachusetts Avenue and is a modern building leased by SPH. It is home to three SPH academic departments (Biostatistics, Community Health Sciences, and Global Health) as well as the Medical Campus branches of the university's Human Resources and Information Technology.²⁷

The **Instructional Building**, also known as the L-Building, is the main classroom building for SPH and the Medical School, and the home to the Alumni Medical Library, and a large cafeteria and coffee shop used by students from across the Medical Campus.

The **A Building**, **Evans Building**, and **Housman Building** are part of the large Medical Campus complex, which contain classrooms and conference rooms used by SPH and several SPH offices. Similarly, the **670 Albany Street Building** houses a large fixed-seating auditorium as well as two flexible space classrooms used by SPH and is located just across Albany Street from the Talbot Building. Of note, the A Building is home to Student Financial Services and the Medical Campus Housing Office, both of which serve SPH students but are campus-wide services not included in the calculations below.

The **Dr. Solomon Carter Fuller Mental Health Building**, simply referred to as the Fuller Building, is owned by the Commonwealth of Massachusetts and is home to one of the largest mental health clinics

²⁷ Human Resources and Information Technology are utilized by the SPH community but, as university services, are not included in the space calculations.

in the Boston area. Fuller houses the school's Biostatistical and Epidemiology Data Analytic Center (BEDAC) as well as the university Ombuds office.²⁸

Table C4.1.1: SPH Space by Building

Building	Offices		Classrooms		Conference Rooms		Shared Student Space			
	#	Sq ft	#	Sq ft	#	Sq ft	Study Room		Lounge	
							#	Sq ft	#	Sq ft
Talbot	184	25,026			14	4,209	4	718	4	767
Crosstown Center	158	19,943	4	3,040	9	2,345	5	742	1	800
Instructional Building			25	26,774					4	2,223
Housman	5	984	13	5,860	1	296	7	1,506		
Evans			11	7,201						
Fuller	24	3,226			2	618				
A Building			1	2,322						
670 Albany			1	4,763						
Total	368	49,179	55	49,960	26	7,468	16	2,966	9	3,790

Faculty and Staff Office Space

The Talbot and Crosstown buildings provide 342 of the 368 faculty and staff offices; the remaining 24 offices are in the Fuller and Housman buildings. Full-time faculty and staff have their own work space, in the form of their own office, a shared office, or designated cubicle space. Each employee is provided with a desktop and/or laptop computer for their workspace that includes storage for files and media.

Table C4.1.2: Faculty and Staff Office Space

Building	Faculty		Staff		Total Offices	
	#	Sq ft	#	Sq ft	#	Sq ft
Talbot	72	10,174	108	14,426	184	25,026
Crosstown	76	10,951	75	8,277	158	19,943
Fuller			17	3,226	24	3,226
Housman	3	554	6	431	5	984
Total	151	21,679	206	25,430	366	49,179

Classrooms

Seventy-eight (78) classrooms, including 26 conference rooms, are available for SPH courses. Many of these classrooms are also used for assemblies, seminars, workshops, trainings, and small group study sessions. While all of the classrooms listed are available for SPH use, the majority of SPH classes are held in the Instructional Building, Crosstown, and Evans.

²⁸ The Ombuds Office is utilized by the SPH community but, as a university service, is not included in the space calculations.

Table C4.1.3. Classroom Space by Type

Type	Small (1-30 occupancy)		Medium (31-60 occupancy)		Large (61-320 occupancy)		Total	
	#	Capacity	#	Capacity	#	Capacity	#	Capacity
Auditorium					6	1,402	6	1,402
Case room					1	84	1	84
Lab classroom			7	230			7	230
Classroom	5	124	21	823			26	927
Conference room	4	77					4	77
Computer lab	5	113					5	113
Seminar room	3	40					3	40
Testing center					1	220	1	220
Outdoor event space					1	800	1	800
Total	17	354	28	1,053	9	2,506	54	3,893

Classrooms are renovated as needed, with particular attention to updating technology and teaching equipment to best serve changing pedagogical needs. Two recent and significant renovations were made to create a testing center on the 11th floor of the Alumni Medical Library in 2014 and creating a new classroom in the Evans Building in 2016.

The 11th floor of the Alumni Medical Library now provides a state-of-the-art, 220-seat testing center. The testing center is among the first of its kind and serves to both facilitate the administration of exams and is a quiet, clean study space available to BUMC students when not being used for exams. The center is equipped with a powerful wireless system, a video monitoring system and an audio system for proctor announcements, a state-of-the-art computer classroom, and a coffee/vending lounge with club seating, group study tables, PCs, a scanner, and print release station.

The recently renovated Evans classroom provides 3,100 square feet of auditorium-style classroom seating exclusively for SPH use. With a seating capacity of 137, the room a state of the art audio visual package and is fully ADA compliant. Two new ADA-compliant bathrooms were added immediately outside of the room.

Shared Student Space

Shared student space includes designated study rooms, conference rooms, and lounge areas. Students may book seven designated study rooms in Housman and any of the school's conference rooms when not in use. There is a total of over 9,500 square feet of study/lounge space, with a capacity of over 300 students at any given time, available to SPH students across BUMC. These spaces are first come, first serve and have a variety of amenities such as tables and chairs, soft seating, computer carrels, and coffee and vending machines.

As indicated above, the 11th floor testing center serves as a popular study space, as do the lounge and cafeteria in the Instructional Building, which were renovated in 2014 and can accommodate 120 occupants.

Laboratories

SPH has 4,300 sq. ft. of fully-equipped, renovated laboratory space in the Housman Building. Primarily used by the Environmental Health Department, the laboratories are adjacent to shared equipment rooms, a dark room, and a cold room and are conveniently located near a number of BUMC core facilities, specifically the Laboratory Animal Science Center, Illumina Sequencing Core, Analytical Instrument Core, Biomedical Imaging Core, Cellular Imaging Core, Flow Cytometry Facility Core, High

Throughput Screening Core, Immunohistochemistry Core, Microarray Resource, Molecular Genetics, and Proteomics.

2) Provide narrative and/or data that support the assertion that the physical space is sufficient or not sufficient. (self-study document)

The school's physical space is currently sufficient. Faculty and staff have dedicated work spaces that meet their needs and students have a variety of spaces to use for studying, socializing, and events. SPH classrooms are sufficient but as pedagogy evolves, SPH classes need more flexible classrooms, break-out rooms, and technology. The school continues to identify suitable solutions to this ongoing challenge.

While the school's space meets current needs, SPH is at capacity within the current footprint, and will require additional space either allocated or rented as the school launches new initiatives. The Dean has been in conversation with the University Provost and President about this and plans are underway to make sure that SPH has room for expansion as needed.

3) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)

Like many urban campuses, physical space is in high demand and expensive. This is particularly true in Boston, where construction costs as well as rental costs are very high. Proactive planning is imperative and is managed by the BUMC Provost in consultation with the deans, the BU Office of Real Estate, and university leadership. As SPH grows, the school faces challenges obtaining new space for both construction and rental purposes, and must consider space as a key element in decision-making and future program planning.

The SPH Associate Dean for Administration manages space allocation in consultation with the Dean. The Associate Dean for Administration also serves as chair for the BUMC Academic and Educational Resource Committee, a campus-wide committee representing all BUMC schools, which reviews all shared student and educational space on the campus and makes recommendations to the BUMC Provost for renovations, upgrades, and general improvements.

Reserving classrooms and events space in shared facilities can be a challenge. To help alleviate competing requests, BU recently implemented Live25, an online scheduling tool, to increase efficiency, enhance transparency with requests, provide a gatekeeper for approval of requests, optimize usage of space, and ensure compliance with occupancy codes. This tool will aid decision makers in assessing room usage and how best to utilize funds for upgrades and expansion. The roll-out of the new system has had its challenges but SPH is working closely with colleagues from the other schools on campus to maximize the utility of the system.

C5. Information and Technology Resources

The school has information and technology resources adequate to fulfill its stated mission and goals and to support instructional programs. Information and technology resources include library resources, student access to hardware and software (including access to specific software or other technology required for instructional programs), faculty access to hardware and software (including access to specific software required for the instructional programs offered) and technical assistance for students and faculty.

1) Briefly describe, with data if applicable, the following:

- library resources and support available for students and faculty
- student access to hardware and software (including access to specific software or other technology required for instructional programs)
- faculty access to hardware and software (including access to specific software or other technology required for instructional programs)
- technical assistance available for students and faculty

(self-study document)

Library Resources²⁹

The Alumni Medical Library serves each of the schools and programs on the Medical Campus. As of August 2017, print collections consist of 65,704 volumes, including 26,110 monograph volumes. Electronic collections include 6,848 e-journals, 12,602 e-books, 343 databases, and 123 web-based subject guides. Public health-specific resources include 1,005 public health e-journals, 913 e-books, and 31 public health subject guides. The journal collection covers a broad range of public health subjects, as well as basic, clinical, and related biomedical sciences.

Seating is available for 721 users throughout the library, including public computing and computer classrooms. Library Computing and Systems staff manage 99 classroom fixed computers and 58 public computers in four classrooms, the computer lab, and library, all of which are accessible to SPH students, faculty, and staff. Public computers contain Microsoft Office 2016; SAS; SPSS; bibliographic and knowledge bases including MEDLINE, Embase, Web of Science, ERIC and POPLINE; e-journal and e-book collections; the BU Libraries Search Catalog; as well as evidence-based and point-of-care clinical information resources.

In addition to the resources of the Medical Library, SPH students, faculty, and staff have access to the Boston University libraries' collection of more than 2.4 million physical volumes, 233,876 serial titles, and 152,208 media titles located at the Mugar, Science/Engineering, and other BU libraries.

Access to licensed resources is provided via the web, IP address licensing, and EZProxy. The EZProxy system provides all Boston University users with a seamless method of accessing licensed electronic content through Kerberos computer network authentication protocol. SPH students, faculty, and staff may access resources 24/7 from home or other remote locations. Electronic resources are accessible from multiple points including from databases that enable users to link directly to licensed PDF articles, the BU Libraries ExLibris Primo Catalog Search, and the Medical Library's e-Resources webpages. Reference librarians have also developed web-based subject guides to facilitate access to licensed e-journals, e-books, databases, critically evaluated websites, and online tutorials developed by the National Library of Medicine and library staff. The Library Education program provides SPH orientation sessions, online tutorials, curriculum-integrated instruction, research support, and workshops for students, faculty, and researchers.

²⁹ Boston University recently retained a leading architectural firm to plan a major renovation of the Alumni Medical Library, that will likely be completed towards the end of 2019. The final self-study will be updated with any details available in Fall 2018.

Student Access to Hardware and Software

SPH students have access to strategically located computers throughout campus. In Talbot, there are three computer workstations outside the Registrar's Office, six computers and a printer in the Student Organization Office, and two computers and a printer in the Career Services and Practicum Office Resource Library. The Crosstown building has 35 computer carrels for student use. There are 10 computers for student use adjacent to the cafeteria in the Instructional Building. As stated above, students also have access to 58 computers in the Alumni Medical Library.

Wireless connections provide access for students and faculty with laptop computers and other mobile devices everywhere on the Medical Campus. A survey of Medical Campus students found that the vast majority of students own laptops so campus-wide wireless access is an important computing resource. SPH students are able to apply for financial assistance for the one-time purchase of a personal computer.

As indicated above, students are able to access all university electronic resources from their homes.

Printing and scanning. The library computing lab contains 1 networked laser printer and students may print up to 200 pages for free using library copy cards. The library has three sets of scanners, one on each floor of the library.

Instruction software. Boston University site licensing includes, but is not limited to, Microsoft Office, SAS, JMP, and mathematical and scientific software LabVIEW, Maple, Mathematica, MATLAB and S-PLUS. Several utility softwares are also provided via site licensing, such as McAfee VisusScan, PaperCut, FTP, VPN and X windows. SPH also uses Blackboard 8, BU's online course management software.

Faculty Access to Hardware and Software

Faculty and staff members have a computer supplied by the school with access to all university computer support services. Each computer comes with Microsoft Office, McAfee VirusScan, AntiSpyware software, and network storage. Individuals may also request SAS, Adobe Acrobat, and many other software titles.

Faculty are encouraged to use the educational technology and training available to improve learning and enhance the classroom experience. BUMC's Educational Media department is responsible for training and supporting faculty using classroom technologies. A sample of the Educational Media training schedule is presented as Figure C5.1.1.

Figure C5.1.1. Educational Media Training, Summer/Fall 2017

Training	Date	Day	Time	Room
WordPress Intro	7/10/2017	Mon	10AM - 11:30AM	L1105
WordPress Level 2	7/12/2017	Wed	10AM - 11:30AM	L1105
Qualtrics Intro	7/18/2017	Tue	10AM - 11:30AM	L1105
Blackboard Intro	7/21/2017	Fri	10AM - 11:30AM	L1105
TurningPoint Cloud Intro	7/26/2017	Wed	10AM - 11:30AM	L1105
Echo360 Active Learning Platform	7/27/2017	Thu	1:30PM - 3:00PM	L1105
Kaltura Capture Space	7/28/2017	Mon	1:30PM - 3:00PM	L1105
WordPress Intro	8/3/2017	Thu	9AM - 10:30AM	L1105
WordPress Level 2	8/9/2017	Wed	1:30PM - 3:00PM	L1105
Qualtrics Intro	8/11/2017	Fri	1:30PM - 3:00PM	L1105
Blackboard Intro	8/14/2017	Mon	1:30PM - 3:00PM	L1105
TurningPoint Cloud Intro	8/17/2017	Thu	10AM - 11:30AM	L1105
Echo360 Active Learning Platform Intro	8/22/2017	Tue	1:30PM - 3:00PM	L1105
Kaltura Capture Space	8/24/2017	Thu	9AM - 10:30PM	L1105
WordPress Intro	9/4/2017	Mon	1:30PM - 3:00PM	L1105
WordPress Level 2	9/6/2017	Wed	10AM - 11:30AM	L1105
Qualtrics Intro	9/8/2017	Fri	1:30PM - 3:00PM	L1105
Blackboard Intro	9/12/2017	Tue	10AM - 11:30AM	L1105
TurningPoint Cloud Intro	9/18/2017	Mon	1:30PM - 3:00PM	L1110
Echo360 Active Learning Platform Intro	9/20/2017	Wed	1:30PM - 3:00PM	L1105
Kaltura Capture Space	9/22/2017	Fri	10AM - 11:30AM	L1110

Technology assistance available for students and faculty

BU Information Services and Technology (IS&T) provides centralized technology support (software, hardware, and account services) to students, faculty, and staff via phone, email, online request, and in person on both the Medical and Charles River campuses. Students also may get support at the Library Computing Help Desk.

IS&T is a full-service operation, providing students, faculty, and staff with the following:

- Software and hardware support, including software installation and updating anti-virus software
- Help selecting and purchasing new equipment; system migrations from older operating systems
- Assistance with the BU network and services, including support for network printers
- Software support for a variety of Mac and Windows operating systems and applications
- Manufacturer authorized warranty repair services for approved computers
- E-waste recycling and consultation

Once students have obtained a BU login name and Kerberos password, they can download and install McAfee anti-virus software free of charge. This includes the spyware portion and all future updates. Students may also register their personal laptops for free with the Boston University Police Department to aid in theft deterrent and enable return of stolen or lost laptops.

2) Provide narrative and/or data that support the assertion that information and technology resources are sufficient or not sufficient. (self-study document)

Information and technology resources are sufficient. Approximately 90% of students own a personal computer, which they may purchase with the assistance of financial aid, and all students have access to computing facilities on campus. Instructors have access to a variety of instructional software, almost all of which is free to faculty and students. Faculty and staff are supplied computers and all members of the SPH community may receive support from the university's full-service Information Technology and Services department.

3) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)

As part of a large research university, the school has a wealth of information and technology resources available to faculty, staff, and students. IS&T is highly responsive and classroom technology is supported by a dedicated team in the Educational Media department. Software training is available for faculty, staff, and students, and the majority of software used for SPH courses is available for free to students and faculty.

D1. MPH and DrPH Foundational Public Health Knowledge

The school ensures that all MPH and DrPH graduates are grounded in foundational public health knowledge.

Grounding in foundational public health knowledge is measured by the student's achievement of the learning objectives listed below, or higher-level versions of the same objectives.

Profession & Science of Public Health

1. Explain public health history, philosophy and values
2. Identify the core functions of public health and the 10 Essential Services
3. Explain the role of quantitative and qualitative methods and sciences in describing and assessing a population's health
4. List major causes and trends of morbidity and mortality in the US or other community relevant to the school
5. Discuss the science of primary, secondary and tertiary prevention in population health, including health promotion, screening, etc.
6. Explain the critical importance of evidence in advancing public health knowledge

Factors Related to Human Health

7. Explain effects of environmental factors on a population's health
8. Explain biological and genetic factors that affect a population's health
9. Explain behavioral and psychological factors that affect a population's health
10. Explain the social, political and economic determinants of health and how they contribute to population health and health inequities
11. Explain how globalization affects global burdens of disease
12. Explain an ecological perspective on the connections among human health, animal health and ecosystem health (e.g., One Health)

The school validates MPH and DrPH students' foundational public health knowledge through appropriate methods, which may include the following:

- The school verifies students' previous completion of a CEPH-accredited bachelor's degree in public health or MPH degree
- The school implements a test or other assessment tools that address the learning objectives listed above, or higher-level versions of the same objectives
- The school offers an online or in-person course, for credit or not-for-credit, that incorporates the learning objectives listed above, or higher-level versions of the same objectives
- The school includes the learning objectives listed above, or higher-level versions of the same objectives, in courses required of all MPH or DrPH students

1) Provide a matrix that indicates how all MPH and DrPH students are grounded in each of the defined foundational public health learning objectives (1-12). The matrix must identify all options for MPH and DrPH students used by the school. (self-study document)

All MPH and DrPH demonstrate mastery of the public health foundational learning objectives through the completion of PH700, a course comprised of three online modules:

- I. Basics and Principles
 1. The history of public Health
 2. What is public health? (includes core functions; ten essential services; primary, secondary, and tertiary prevention; and philosophy and values)
 3. Ethics in public health

4. The importance of evidence in public health (surveillance, descriptive and analytical epidemiology; quantitative research)
 5. Qualitative Research in Public Health
 6. Trends in mortality, morbidity, and preventive measures in the United States
- II. Biological Foundations for Public Health
1. Some basic cell biology (the molecules of life; basic cell structure and function)
 2. DNA, heredity, and drug resistance
 3. Infectious agents
 4. Respiratory health (basic physiology plus asthma, effects of smoking, emphysema, air pollution, greenhouse gases)
 5. Heart health (atherosclerotic heart disease)
 6. Cancer
- III. Factors Related to Human Health
1. Effects of environmental factors on a population's health
 2. Behavioral and psychological factors that affect a population's health
 3. Social, political and economic determinants of health and how they contribute to population health and health inequities
 4. How globalization affects global burdens of disease
 5. An ecological perspective on the connections among human health, animal health and ecosystem health (One Health)

Table D1.1.1. Foundational knowledge coverage for MPH and DrPH degrees

Content	Course number(s) or other educational requirements
1. Explain public health history, philosophy and values	PH700: Foundations of Public Health Online assessments on each topic, and a final examination.
2. Identify the core functions of public health and the 10 Essential Services*	
3. Explain the role of quantitative and qualitative methods and sciences in describing and assessing a population's health	
4. List major causes and trends of morbidity and mortality in the US or other community relevant to the school	
5. Discuss the science of primary, secondary and tertiary prevention in population health, including health promotion, screening, etc.	
6. Explain the critical importance of evidence in advancing public health knowledge	
7. Explain effects of environmental factors on a population's health	
8. Explain biological and genetic factors that affect a population's health	
9. Explain behavioral and psychological factors that affect a population's health	
10. Explain the social, political and economic determinants of health and how they contribute to population health and health inequities	
11. Explain how globalization affects global burdens of disease	
12. Explain an ecological perspective on the connections among human health, animal health and ecosystem health (e.g., One Health)	

2) Document the methods described above. This documentation must include all referenced syllabi, samples of tests or other assessments and web links or handbook excerpts that describe admissions prerequisites, as applicable. (electronic resource file)

The syllabus and assessments for PH700 are available as [ERF D1.2.1](#).

3) If applicable, assessment of strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)

Students complete the Foundations of Public Health course before matriculating at SPH, ensuring that all students have the same baseline knowledge. Completing this online course also orients students toward the expectations of graduate education and help faculty effectively prepare foundational coursework.

D2. MPH Foundational Competencies

All MPH graduates demonstrate the following competencies.

The school documents at least one specific, required assessment activity (e.g., component of existing course, paper, presentation, test) for each competency below, during which faculty or other qualified individuals (e.g., preceptors) validate the student's ability to perform the competency.

Assessment opportunities may occur in foundational courses that are common to all students, in courses that are required for a concentration or in other educational requirements outside of designated coursework, but the school must assess all MPH students, at least once, on each competency. Assessment may occur in simulations, group projects, presentations, written products, etc. This requirement also applies to students completing an MPH in combination with another degree (e.g., joint, dual, concurrent degrees). For combined degree students, assessment may take place in either degree program.

These competencies are informed by the traditional public health core knowledge areas, (biostatistics, epidemiology, social and behavioral sciences, health services administration and environmental health sciences), as well as cross-cutting and emerging public health areas.

Evidence-based Approaches to Public Health

1. Apply epidemiological methods to the breadth of settings and situations in public health practice
2. Select quantitative and qualitative data collection methods appropriate for a given public health context
3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate
4. Interpret results of data analysis for public health research, policy or practice

Public Health and Health Care Systems

5. Compare the organization, structure and function of health care, public health and regulatory systems across national and international settings
6. Discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and societal levels

Planning and Management to Promote Health

7. Assess population needs, assets and capacities that affect communities' health
8. Apply awareness of cultural values and practices to the design or implementation of public health policies or programs
9. Design a population-based policy, program, project or intervention
10. Explain basic principles and tools of budget and resource management
11. Select methods to evaluate public health programs

Policy in Public Health

12. Discuss multiple dimensions of the policy-making process, including the roles of ethics and evidence
13. Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes
14. Advocate for political, social or economic policies and programs that will improve health in diverse populations
15. Evaluate policies for their impact on public health and health equity

Leadership

16. Apply principles of leadership, governance and management, which include creating a vision, empowering others, fostering collaboration and guiding decision making
17. Apply negotiation and mediation skills to address organizational or community challenges

Communication

18. Select communication strategies for different audiences and sectors
19. Communicate audience-appropriate public health content, both in writing and through oral presentation
20. Describe the importance of cultural competence in communicating public health content

Interprofessional Practice

21. Perform effectively on interprofessional teams

Systems Thinking

22. Apply systems thinking tools to a public health issue

1) List the coursework and other learning experiences required for the school's MPH degrees, including the required curriculum for each concentration and combined degree option. Information may be provided in hyperlinks to student handbooks or webpages, and must present a clear depiction of the requirements for each MPH degree. (self-study document)

Required coursework for the MPH detailed in the SPH [bulletin](#) as indicated below.

MPH degree overview: bu.edu/academics/sph/programs/mph/

All MPH candidate complete four integrated core courses:

- PH717 Quantitative Methods for Public Health
- PH718 Leadership and Management for Public Health
- PH719 Health Systems, Law, and Policy
- PH720 Individual, Community, and Population Health

MPH requirements by specialization

- Community Assessment, Program Design, Implementation, and Evaluation: bu.edu/academics/sph/programs/mph/community-assessment/
- Design and Conduct of Public Health Research: bu.edu/academics/sph/programs/mph/design-and-conduct/
- Environmental Hazard Assessment: bu.edu/academics/sph/programs/mph/environmental-hazard-assessment/
- Epidemiology and Biostatistics: bu.edu/academics/sph/programs/mph/epidemiology-and-biostatistics/
- Health Communication and Promotion: bu.edu/academics/sph/programs/mph/health-communication-and-promotion/
- Health Policy and Law: bu.edu/academics/sph/programs/mph/health-policy-and-law/
- Monitoring and Evaluation: bu.edu/academics/sph/programs/mph/monitoring-and-evaluation/
- Healthcare Management: bu.edu/academics/sph/programs/mph/healthcare-management/
- Program Management: bu.edu/academics/sph/programs/mph/program-management/

Dual degree options

- Bachelor of Arts/Master of Public Health: bu.edu/academics/cas/programs/bamph-program/
- Bachelor of Science/Master of Public Health: bu.edu/academics/sar/programs/public-health/bs-mph/

- Master of Business Administration/Master of Public Health: bu.edu/academics/sph/programs/mba-mph/
- Juris Doctor/Master of Public Health: bu.edu/academics/law/programs/jdmp/
- Master of Science/Master of Public Health: bu.edu/academics/sph/programs/medical-sciences-and-public-health/

2) Provide a matrix that indicates the assessment activity for each of the foundational competencies listed above (1-22). If the school addresses all of the listed foundational competencies in a single, common core curriculum, the school need only present a single matrix. If combined degree students do not complete the same core curriculum as students in the standalone MPH program, the school must present a separate matrix for each combined degree. (self-study document)

Students enrolled in the MPH, BA/MPH, BS/MPH, MBA/MPH, MD/MPH, MS/MPH, and MSW/MPH are assessed on their ability to demonstrate the MPH foundational competencies as detailed in Table D2.2.1.

JD/MPH students are waived from PH719 Health Systems, Law, and Policy upon successful completion of JD867 Health Law: Business, Organization, and Finance. These students demonstrate the MPH foundational competencies as detailed in Table D2.2.2.

Table D2.2.1. Mastery of MPH Foundational Competencies for MPH, BA/MPH, BS/MPH, MBA/MPH, MD/MPH, MS/MPH, and MSW/MPH Degree Candidates

Competency	Course	Assessment
Evidence-based Approaches to Public Health		
1. Apply epidemiological methods to the breadth of settings and situations in public health practice	PH717: Quantitative Methods for Public Health	Final Team Project: The final project is a data analysis designed to synthesize and apply quantitative methods for public health including descriptive and analytic epidemiology. The deliverable is a written report that follows the format of a modified peer-reviewed scientific manuscript including details on background, methods, results and conclusions. The final written report includes identification of two potential sources of bias in the study along with direction of each bias: towards or away from the null; two limitations of this study and/or data analysis; and an assessment on whether the results from the data analysis are generalizable (externally valid) and to what other populations.
2. Select quantitative and qualitative data collection methods appropriate for a given public health context	PH717: Quantitative Methods for Public Health	Problem Set #2: Exposure Assessment. Students determine appropriate methods to measure exposures in a variety of settings and situations.

Competency	Course	Assessment
3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate	PH717: Quantitative Methods for Public Health	Final Team Project: The final project is a data analysis designed to synthesize and apply quantitative methods for public health. Teams have access to four datasets with supporting documentation. Each team will choose one dataset and develop a research question that is addressable in that dataset. Teams work together to design an analysis plan, and conduct analyses using RStudio. Teams summarize and present their key findings in appropriate tables and figures. Tables can be generated in Microsoft Word; figures must be generated in RStudio. The team will submit one written report and all members of the group are responsible for the final product.
4. Interpret results of data analysis for public health research, policy or practice	PH717: Quantitative Methods for Public Health	Final Team Project: The final project is a data analysis designed to synthesize and apply quantitative methods for public health. Teams write key findings summarizing the results of statistical tests including crude and adjusted results with full interpretation of crude and adjusted measure of association. A final section describes implications for public health policy or practice.
Public Health and Health Care Systems		
5. Compare the organization, structure and function of health care, public health and regulatory systems across national and international settings	PH719: Health Systems, Law, and Policy	Written Assignment. Students compare health care spending and outcomes on selected measures in the U.S. with those of other countries.
6. Discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and societal levels	PH720: Individual, Community, and Population Health	Background and Situation Analysis: As part of the semester-long Public Health Issue Analysis project, students research a specific public health problem in order to understand the background of the problem - its magnitude and burden, and how it impacts a specified population. Students meet this competency by using a social justice theme discussed in course content and lecture to guide their approach to the problem as most appropriate.
		Determinants Analysis: As part of the semester-long Public Health Issue Analysis project, students work in teams to first narrow down general topics they investigate in the Background & Situation Analysis, and then systematically use evidence-based sources to describe the determinants of the problem at each of the levels of the social ecological model. Students meet this competency by applying knowledge from course content and lecture specifically about structural biases, social inequities and racism to their understanding of the determinants of the health problem they are addressing in their team project.

Competency	Course	Assessment
		<p>Strategy Outline: As the 3rd part of the semester-long Public Health Issue Analysis project, students work in teams to identify and critically evaluate recent strategies that have been used to address their team's specific health problem, and to use the strengths and challenges they have identified in existing strategies to propose either a new strategy or a modification of existing ones to meet the specific needs of their target population. Students meet this competency in the delivery of a product that has required students to attend directly to the theme of social justice while critically evaluating the strengths and weakness of existing strategies designed to address the health problem.</p>
Planning and Management to Promote Health		
7. Assess population needs, assets and capacities that affect communities' health	PH720: Individual, Community, and Population Health	<p>Determinants Analysis: As the second part of the semester-long Public Health Issue Analysis project, students work in teams to first narrow down general topics they investigate in the Background & Situation Analysis, then systematically use evidence-based sources to describe the determinants of the problem at each of the levels of the social ecological model. Students meet this competency by investigating current research identifying the ways in which their specified health problem affects a specific population, with a particular emphasis on that population's current needs and capacities.</p>
		<p>Strategy Outline: As the 3rd part of the semester-long Public Health Issue Analysis project, students work in teams to identify and critically evaluate recent strategies that have been used to address their team's specific health problem, and to use the strengths and challenges they have identified in existing strategies to propose either a new strategy or a modification of existing ones to meet the specific needs of their target population. By conducting a critical evaluation of recent strategies developed to address the specified public health problem that identifies the strengths and weakness of those existing strategies, students meet this competency by becoming aware of the major challenges involved in developing and delivering successful strategies in communities and proposing ways in which the communities' capacities and strengths can be used to foster better population health.</p>

Competency	Course	Assessment
8. Apply awareness of cultural values and practices to the design or implementation of public health policies or programs	PH720: Individual, Community, and Population Health	<p>Determinants Analysis: As the second part of the semester-long Public Health Issue Analysis project, students work in teams to first narrow down general topics they investigate in the Background & Situation Analysis, then systematically use evidence-based sources to describe the determinants of the problem at each of the levels of the social ecological model. Students meet this competency by applying course content on cultural values and social justice as they describe the historical and cultural context in which the health problem under investigation has developed and been maintained in this population.</p>
		<p>Strategy Outline: As the 3rd part of the semester-long Public Health Issue Analysis project, students work in teams to identify and critically evaluate recent strategies that have been used to address their team's specific health problem, and to use the strengths and challenges they have identified in existing strategies to propose either a new strategy or a modification of existing ones to meet the specific needs of their target population. Students meet this competency by applying course content on cultural values and social justice as they critically evaluate the historical and cultural context in which recent strategies and interventions have been proposed, and to use that knowledge to propose more effective strategies when working with their specified population.</p>
9. Design a population-based policy, program, project or intervention	PH719: Health Systems, Law, and Policy	<p>Written Assignment. Each student writes a memo on whether and how a specific public health policy can and should be translated into law. Students must weigh evidence for and against the policy, identify and analyze possible obstacles to implementation, and explain why the policy does or does not meet the applicable standards for adoption.</p>
		<p>Policy paper. Students evaluate a current issue in health care or public health policy. Students analyze the evidence for and against adopting a specific policy or program, including legal, political, and financial factors, and make a recommendation for or against its implementation.</p>
	PH720: Individual, Community, and Population Health	<p>Determinants Analysis: As the second part of the semester-long Public Health Issue Analysis project, students work in teams to first narrow down general topics they investigate in the Background & Situation Analysis, then systematically use evidence-based sources to describe the determinants of the problem at each of the levels of the social ecological model. As part of the overall project, conducting the determinants analysis will set the stage for making recommendations on how to address the problem.</p>

Competency	Course	Assessment
		<p>Strategy Outline: As the 3rd part of the semester-long Public Health Issue Analysis project, students work in teams to identify and critically evaluate recent strategies that have been used to address their team's specific health problem, and to use the strengths and challenges they have identified in existing strategies to propose either a new strategy or a modification of existing ones to meet the specific needs of their target population. Students meet this competency by critically evaluating the strengths and weaknesses of recent strategies/interventions that have been designed to address the specified public health problem, and to use that analysis to inform their recommendations for the design of either a new strategy/intervention/program/policy or for improvements on existing ones that specifically address the needs of their target population.</p>
<p>10. Explain basic principles and tools of budget and resource management</p>	<p>PH718: Leadership and Management for Public Health</p>	<p>Team Project: Students work in teams to develop fundraising project plan for a public health-related organization of their choice through a case statement of the organization, project plan for the fundraiser, budget and justification, leading to a final team presentation and report. A complete budget spreadsheet for the fundraising activity is required and must be accompanied by a justification of each line item. The project plan narrative details how the budgeted items will be implemented. This assignment covers the competency through teaching the basics of how to budget for a program and how to manage resources effectively and justify that management.</p>
<p>11. Select methods to evaluate public health programs</p>	<p>PH719: Health Systems, Law, and Policy</p>	<p>Written examination. Students are given an example of a public health policy with specific questions to answer in a complete written essay. Students identify the level of government best suited to implement the policy and select the appropriate method to evaluate the policy. Answers must analyze the evidence for and against the policy, and explain whether the policy meets the applicable standard for adoption. In addition, students must write short answers identifying the appropriate policy tools to implement various policy issues, proposals, and programs.</p>

Competency	Course	Assessment
	PH720: Individual, Community, and Population Health	<p>Determinants Analysis: As part of the semester-long Public Health Issue Analysis project, students work in teams to first narrow down general topics they investigate in the Background & Situation Analysis, then systematically use evidence-based sources to describe the determinants of the problem at each of the levels of the social ecological model. In the process of identifying the determinants of the specified health problem at the levels of the social ecology model, students meet this competency by reading and critically evaluating the strengths and weaknesses of recent strategies/interventions that have been designed to address the specified public health problem.</p> <p>Strategy Outline: As the 3rd part of the semester-long Public Health Issue Analysis project, students work in teams to identify and critically evaluate recent strategies that have been used to address their team's specific health problem, and to use the strengths and challenges they have identified in existing strategies to propose either a new strategy or a modification of existing ones to meet the specific needs of their target population. While not asking students to design and conduct an evaluation per se, students meet this competency by reading and critically evaluating the strengths and weaknesses of recent strategies/interventions that have been designed to address the specified public health problem, and to use that analysis to inform their recommendations for either a new strategy/intervention or for improving on existing ones.</p>
Policy in Public Health		
12. Discuss multiple dimensions of the policy-making process, including the roles of ethics and evidence	PH719: Health Systems, Law, and Policy	Written examination. Students analyze health policies and select the appropriate method of evaluation. Answers must analyze evidence for and against the policy, explain stakeholder support for and opposition to the policy. Students examine data and explain the effects of a policy on different populations.
13. Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes	PH718: Leadership and Management for Public Health	Team Project: Students work in teams to develop fundraising project plan for a public health-related organization of their choice through a case statement of the organization, project plan for the fundraiser, budget and justification, leading to a final team presentation and report. Students must note important stakeholders for their fundraiser's success in the project plan. This assignment addresses the competency because it has students link public health project activities to external stakeholders and discuss how partnerships with stakeholders are beneficial to the project.

Competency	Course	Assessment
	PH719: Health Systems, Law, and Policy	Policy paper. Students identify interest groups on both sides of a health policy. The description of interest groups includes stated reason or rationale for policy support and opposition, as well as unmentioned reasons.
14. Advocate for political, social or economic policies and programs that will improve health in diverse populations	PH719: Health Systems, Law, and Policy	Policy paper. Students evaluate a current issue in health care or public health policy and give recommendations to policy makers or stakeholders, based on relevant evidence. If policy is in place, recommendation could be maintaining, specific revision, or repeal. For proposed policies, the recommendation could be to support, refuse to support, or propose revisions. For failed policies, there could be a recommendation on how to revise for resubmission.
		Written assignment. Students write a memo on whether and how a specific public health policy can and should be translated into law. Students must weigh evidence for and against the policy, identify and analyze possible legal, practical, and economic obstacles to implementation, and present a persuasive argument for their conclusions.
	PH720: Individual, Community, and Population Health	Final Presentation: As the final part of the semester-long Public Health Issue Analysis project, student teams present the results of their Background & Situation Analysis, Determinants Analysis, and Strategy Recommendations in a professional poster format. As students combine the previous sections of the project for the final presentation, they have the opportunity to use course content and lecture material to advocate for their specified population by proposing improved strategies and linking their approach to concepts of social justice, equity and cultural competence.
15. Evaluate policies for their impact on public health and health equity	PH719: Health Systems, Law, and Policy	Policy paper. Students describe a health policy with attention to its effects on access, cost, quality, equity, and population health. Students provide existing evidence for these effects or extrapolate from evidence on comparable policies.
Leadership		
16. Apply principles of leadership, governance and management, which include creating a vision, empowering others, fostering collaboration and guiding decision making	PH718: Leadership and Management for Public Health	Team Project: Students work in teams to develop fundraising project plan for a public health-related organization of their choice through a case statement of the organization, project plan for the fundraiser, budget and justification, leading to a final team presentation and report. Students must establish goals and objectives for their projects. This assignment covers the competency as it involves creating a vision for the project and working with others to achieve a goal and make decisions.

Competency	Course	Assessment
		Final Individual Assignment: Students write about a leadership and/or management experience they have had and apply and analyze course concepts to that situation. Students then use that analysis to outline recommendations to better lead/manage in the future. This assignment covers the competency because it applies the principles of leadership and management to situations they have encountered.
17. Apply negotiation and mediation skills to address organizational or community challenges	PH718: Leadership and Management for Public Health	Negotiation and Conflict Management Simulation: Using a Harvard Business School case, "MedLee: In Pursuit of Healthy Joint Venture", students participate in a role-play activity to learn and apply the concepts of negotiation. The simulation is designed to provide participants with hands-on experience in negotiating across cultures. After review of negotiation concepts in class, students are put into pairs and assigned one of the two negotiator roles. Students negotiate the terms and complete a worksheet outlining the agreement. After the role-play activity, the class as a whole discusses best practices in preparing for and executing a negotiation, impact of culture on negotiations, and how these skills are applied in public health.
Communication		
18. Select communication strategies for different audiences and sectors	PH718: Leadership and Management for Public Health	<p>Team Project: Students work in teams to develop fundraising project plan for a public health-related organization of their choice through a case statement of the organization, project plan for the fundraiser, budget and justification, leading to a final team presentation and report. Students must select communication strategies both written (in the report) and orally (in the presentation), and, within the project plan, identify how to communicate with stakeholders and community.</p> <p>Ignite Presentation: Students prepare a 5-minute, images only, PowerPoint-illustrated talk about one of their public health passions, in which each of their 15 slides will be set to advance automatically after 20 seconds. This assignment covers the competency because students must select oral and visual communication strategies to clearly and persuasively discuss a public health topic.</p>
19. Communicate audience-appropriate public health content, both in writing and through oral presentation	PH718: Leadership and Management for Public Health	Ignite Presentation: Students prepare a 5-minute, images only, PowerPoint-illustrated talk about one of their public health passions, in which each of their 15 slides will be set to advance automatically after 20 seconds. This assignment covers the competency because students must select oral and visual communication strategies to clearly and persuasively discuss a public health topic.

Competency	Course	Assessment
	PH720: Individual, Community, and Population Health	Final Presentation: As the final part of the semester-long Public Health Issue Analysis project, student teams present the results of their Background & Situation Analysis, Determinants Analysis, and Strategy Recommendations in a professional poster format. Students meet this competency in each part of the project that culminates in a professional poster presentation.
20. Describe the importance of cultural competence in communicating public health content	PH720: Individual, Community, and Population Health	Background and Situation Analysis: As part of the semester-long Public Health Issue Analysis project, students research a specific public health problem in order to understand the background of the problem - its magnitude and burden, and how it impacts a specified population. Students meet this competency by using course content on cultural competence to guide their approach to the problem as most appropriate.
		Strategy Outline: As the 3rd part of the semester-long Public Health Issue Analysis project, students work in teams to identify and critically evaluate recent strategies that have been used to address their team's specific health problem, and to use the strengths and challenges they have identified in existing strategies to propose either a new strategy or a modification of existing ones to meet the specific needs of their target population. Students meet this competency by using course content on cultural competence to guide their recommendations for addressing the problem as most appropriate.
		Final Presentation: As the final part of the semester-long Public Health Issue Analysis project, student teams present the results of their Background & Situation Analysis, Determinants Analysis, and Strategy Recommendations in a professional poster format. Students meet this competency in the delivery of a product that has requires students to attend directly to the themes of social justice and cultural competence in each of the components of the project.
Interprofessional Practice		
21. Perform effectively on interprofessional teams	PH718: Leadership and Management for Public Health	Discussion Post: In preparation for session 3, students read the following article on interprofessional collaboration: Ambrose-Miller W and Ashcroft R. 2016. "Challenges faced by social workers as members of interprofessional collaborative health care teams." Health & Social Work. 41(2):101-109. Students write and submit talking points, a question and a quotation about the reading.

Competency	Course	Assessment
		CATME Team Selection: Students are asked to complete a brief survey at the beginning of the semester that allows for the appropriate assignment of students to interprofessional teams based on previous professional experience outside of the public health field. Students will be assigned to these teams for the duration of the semester to ensure diverse professional experiences, knowledge and perspectives are reflected in each team's deliverables.
Systems Thinking		
22. Apply systems thinking tools to a public health issue	PH718: Leadership and Management for Public Health	Final Individual Assignment: Students write about a leadership and/or management experience they have had and apply and analyze course concepts to that situation. Students then use that analysis to outline recommendations to better lead/manage in the future. This assignment covers the competency because it has students synthesize concepts and consider how public leadership is impacted by multiple factors (individual, organizational, societal) and a need to collaborate.
		Written assignment. Students write a memo on whether and how a public health policy can be implemented. Students must weigh evidence for and against the policy, identify and analyze possible legal and practical obstacles to implementation, describe possible effects, and synthesize the elements into cohesive conclusions.
	PH719: Health Systems, Law, and Policy	Written examination. Students evaluate examples of health policies with specific questions to answer in a complete written essay for each example. Students identify the entity (private or level of government) best suited to implement the policy and the applicable legal and policy issues, and select the appropriate methods to evaluate the policy. Answers must analyze stakeholder support for and opposition to the policy, and explain whether the policy meets the applicable standards for adoption. Students must identify the relevant policy tools to evaluate different public health issues and problems, including analyzing data in different formats. Students must write answers to shorter questions, such as explaining the scope of jurisdiction of different levels of government over a public health issue, describing the reasons for different outcomes of similar public health policies, and analyzing the probability of successfully implementing the policy or program.

Competency	Course	Assessment
	PH720: Individual, Community, and Population Health	Determinants Analysis: As the second part of the semester-long Public Health Issue Analysis project, students work in teams to first narrow down general topics they investigate in the Background & Situation Analysis, then systematically use evidence-based sources to describe the determinants of the problem at each of the levels of the social ecological model. Students meet this competency by using frameworks (e.g., Social Ecology Model) when developing an understanding of the determinants of a specific health problem.

Table D2.2.2. Mastery of MPH Foundational Competencies for JD/MPH Degree Candidates

Competency	Course	Assessment
Evidence-based Approaches to Public Health		
1. Apply epidemiological methods to the breadth of settings and situations in public health practice		See Table D2.2.1 Covered by PH717: Quantitative Methods for Public Health
2. Select quantitative and qualitative data collection methods appropriate for a given public health context		See Table D2.2.1 Covered by PH717: Quantitative Methods for Public Health
3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate		See Table D2.2.1 Covered by PH717: Quantitative Methods for Public Health
4. Interpret results of data analysis for public health research, policy or practice		See Table D2.2.1 Covered by PH717: Quantitative Methods for Public Health
Public Health and Health Care Systems		
5. Compare the organization, structure and function of health care, public health and regulatory systems across national and international settings	JD856: Health Care Law	Oral Presentation. Students compare health care spending and outcomes on selected measures in U.S. with those of other countries.

Competency	Course	Assessment
6. Discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and societal levels	See Table D2.2.1 Covered by PH720: Individual, Community, and Population Health	
Planning and Management to Promote Health		
7. Assess population needs, assets and capacities that affect communities' health	See Table D2.2.1 Covered by PH720: Individual, Community, and Population Health	
8. Apply awareness of cultural values and practices to the design or implementation of public health policies or programs	See Table D2.2.1 Covered by PH720: Individual, Community, and Population Health	
9. Design a population-based policy, program, project or intervention	JD856: Health Care Law	Written assignments and oral presentations. Students prepare separate analyses of whether and how up to 8 specific public health polices or programs can and should be translated into law and present some analyses orally and others in written papers. Students must weigh evidence for and against the policy, identify and analyze possible obstacles to implementation, and explain why the policy does or does not meet the applicable standards for adoption.
	LW850/JD992: Public Health Law [required for JD-MPH dual degree students]	Paper. Students select a public health issue, identify possible policy tools to resolve the issue, explain the advantages and disadvantages of each, and defend their recommended choice. Students develop a detailed proposal and strategies for implementation.
10. Explain basic principles and tools of budget and resource management	See Table D2.2.1 Covered by PH718: Leadership and Management for Public Health	

Competency	Course	Assessment
11. Select methods to evaluate public health programs	JD856: Health Care Law	Written examination. Students evaluate at least 2 examples of health policies with specific questions to answer in a complete written essay for each example. Students identify the level of government best suited to implement the policy and the applicable legal and policy issues, and select the appropriate method to evaluate the policy. Answers must analyze the evidence for and against to the policy, and explain whether the policy meets the applicable standard for adoption. In addition, students write short answers to additional questions, such as explaining the scope of jurisdiction by different levels of government over a public health issue, describing the reasons for different outcomes of similar public health policies, and analyzing the probability of successfully implementing the policy or program.
	LW850/JD926: Public Health Law [required for JD-MPH dual degree students]	Paper. Students select a public health issue, identify possible policy tools to resolve the issue, explain the advantages and disadvantages of each, and defend their choice of method.
12. Discuss multiple dimensions of the policy-making process, including the roles of ethics and evidence	JD856: Health Care Law	Written examination. Students evaluate at least 2 examples of health policies with specific questions to answer in a complete written essay for each example. Students identify the level of government (federal, state, local, tribal) best suited to implement the policy and the applicable legal and policy issues, and select the appropriate method to evaluate the policy. Answers must analyze stakeholder support for and opposition to the policy, and explain whether the policy meets the applicable standard for adoption into law. In addition, students must write answers to several shorter questions, such as explaining the scope of jurisdiction by different levels of government over a public health issue, describing the reasons for different outcomes of similar public health policies, and analyzing the probability of successfully implementing the policy or program.
13. Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes	LW850/JD926: Public Health Law [Also covered by PH718: Leadership and Management]	Paper. Students select a public health issue, identify possible policy tools to resolve the issue, and explain the advantages and disadvantages of each, and recommend a solution. Student must identify interest groups and stakeholders that support or oppose the proposal and how they would affect implementation.
14. Advocate for political, social or economic policies and programs that will improve health in diverse populations	JD856: Health Care Law	Written assignments and oral presentations: Students evaluate current health issues and present some recommendations orally and others in written papers. Students must weigh evidence for and against the policy, identify and analyze possible legal and practical obstacles to implementation, and present a persuasive argument for their conclusions.

Competency	Course	Assessment
15. Evaluate policies for their impact on public health and health equity	JD856: Health Care Law	Written and oral presentations: Students evaluate current health issues and present some recommendations orally and others in written papers. Students must weigh evidence for and against each policy and the effect of the policy on stakeholders, health outcomes, health equity, and distributive justice.
	LW850/JD926: Public Health Law	Paper. Students select a public health problem, identify possible policy tools to solve the problem, and analyze the evidence for the advantages and disadvantages of each, including their effects on different populations, health outcomes, and health equity.
Leadership		
16. Apply principles of leadership, governance and management, which include creating a vision, empowering others, fostering collaboration and guiding decision making	See Table D2.2.1 Covered by PH718: Leadership and Management for Public Health	
17. Apply negotiation and mediation skills to address organizational or community challenges	See Table D2.2.1 Covered by PH718: Leadership and Management for Public Health	
18. Select communication strategies for different audiences and sectors	See Table D2.2.1 Covered by PH718: Leadership and Management for Public Health	
19. Communicate audience-appropriate public health content, both in writing and through oral presentation	See Table D2.2.1 Covered by PH718: Leadership and Management for Public Health and PH720: Individual, Community, and Population Health	
20. Describe the importance of cultural competence in communicating public health content	See Table D2.2.1 Covered by PH720: Individual, Community, and Population Health	
Interprofessional Practice		
21. Perform effectively on interprofessional teams	See Table D2.2.1 Covered by PH718: Leadership and Management for Public Health	
Systems Thinking		

Competency	Course	Assessment
22. Apply systems thinking tools to a public health issue	JD856: Health Care Law	<p>Written and oral presentations: Students prepare 8 separate analyses of whether and how a specific public health policy can and should be implemented and present them orally or in short papers. Students select the appropriate evaluation method, weigh evidence for and against the policy, identify and analyze possible legal and practical obstacles to implementation, and synthesize the elements into cohesive conclusions.</p> <p>Written examination: Students evaluate examples of health policies with specific questions to answer in a complete written essay for each example. Students identify the entity (private or level of government) best suited to implement the policy and the applicable legal and policy issues, and select the appropriate methods to evaluate the policy, then complete a full evaluation and synthesize the analysis into a defensible conclusion.</p>
	LW850/JD926: Public Health Law	<p>Paper. Students select a public health issue, identify possible policy tools to resolve the issue, and explain the advantages and disadvantages of each, and recommend a solution and implementation strategies. Students evaluate the evidence on whether the proposal and any alternatives meet the applicable standards for adoption into law or adoption by private entities, and their respective effects. Students analyze stakeholder support for and opposition to the policy, the reasons for different outcomes of different solutions to similar policies, and the probability of successfully implementing the policy or program.</p>

3) Include the most recent syllabus from each course listed in Tables D2.2.1 and D2.2.2. (electronic resource file)

The Fall 2017 syllabi for the required core curriculum are available as [ERF D2.3.1](#).

4) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)

All MPH student meet the foundational competencies through the completion of the required integrated core courses: PH717, PH718, PH719, and PH720. The core courses provide a strong foundation in the values, history, methods, and functions of public health, as well as the fundamental knowledge and skills required of 21st-century public health professionals. The interdisciplinary nature of the core curriculum prepares students to pursue any of the certificate specializations. As detailed in criterion [B5](#), the school rigorously evaluates the core curriculum and makes improvements each semester based on the evaluation results.

D3. DrPH Foundational Competencies

The DrPH is the professional doctoral degree in public health, designed to produce transformative academic and practice leaders with expertise in evidence-based public health practice and research. These individuals are able to convene diverse partners; communicate to effect change across a range of sectors and settings; synthesize and translate findings; and generate practice-based evidence that advances programs, policies, services and/or systems addressing population health. DrPH graduates demonstrate the competencies defined in this criterion.

The school documents at least one specific, required assessment activity (e.g., component of existing course, paper, presentation, test) for each competency below, during which faculty or other qualified individuals (e.g., preceptors) validate the student's ability to perform the competency.

Assessment opportunities may occur in foundational courses that are common to all students, in courses that are required for a concentration or in other educational requirements outside of designated coursework, but the school must assess all DrPH students, at least once, on each competency. Assessment may occur in simulations, group projects, presentations, written products, etc.

Data and Analysis

1. Explain qualitative, quantitative, mixed methods and policy analysis research and evaluation methods to address health issues at multiple (individual, group, organization, community and population) levels
2. Design a qualitative, quantitative, mixed methods, policy analysis or evaluation project to address a public health issue
3. Explain the use and limitations of surveillance systems and national surveys in assessing, monitoring and evaluating policies and programs and to address a population's health

Leadership, Management, and Governance

4. Propose strategies for health improvement and elimination of health inequities by organizing stakeholders, including researchers, practitioners, community leaders and other partners
5. Communicate public health science to diverse stakeholders, including individuals at all levels of health literacy, for purposes of influencing behavior and policies
6. Integrate knowledge, approaches, methods, values and potential contributions from multiple professions and systems in addressing public health problems
7. Create a strategic plan
8. Facilitate shared decision making through negotiation and consensus-building methods
9. Create organizational change strategies
10. Propose strategies to promote inclusion and equity within public health programs, policies and systems
11. Assess one's own strengths and weaknesses in leadership capacities, including cultural proficiency
12. Propose human, fiscal and other resources to achieve a strategic goal
13. Cultivate new resources and revenue streams to achieve a strategic goal

Policy and Programs

14. Design a system-level intervention to address a public health issue
15. Integrate knowledge of cultural values and practices in the design of public health policies and programs
16. Integrate scientific information, legal and regulatory approaches, ethical frameworks and varied stakeholder interests in policy development and analysis
17. Propose interprofessional team approaches to improving public health

Education and Workforce Development

18. Assess an audience's knowledge and learning needs
19. Deliver training or educational experiences that promote learning in academic, organizational or community settings
20. Use best practice modalities in pedagogical practices

1) List the coursework and other learning experiences required for the school's DrPH degrees. Information may be provided in hyperlinks to student handbooks or webpages, and must present a clear depiction of the requirements for each DrPH degree. (self-study document)

The degree requirements for the DrPH in Leadership, Management, and Policy are available at bu.edu/academics/sph/programs/drph/.

2) Provide a matrix that indicates the assessment activity for each of the foundational competencies listed above (1-20). If the school addresses all of the listed foundational competencies in a single, common core curriculum, the school need only present a single matrix. (self-study document)

Table D3.2.1. DrPH Competency Assessment, Leadership, Management and Policy Concentration

Competency	Course	Assignment(s) that allow assessment
Data and Analysis		
1. Explain qualitative, quantitative, mixed methods and policy analysis research and evaluation methods to address health issues at multiple (individual, group, organization, community and population) levels	PH 844 – Introduction to Qualitative Methods	Qualitative Evaluation or Research Proposal: This assignment will include <ul style="list-style-type: none"> ▪ Articulation of an evaluation focus or research question; ▪ A full proposal, including background summary, study rationale, study design, participants and setting, data collection and analysis plans, etc.; and ▪ A peer review.
	PH 851 - Community Needs Assessment and Systems Analysis	Presentation: overview of data sources at the subnational level in the U.S. and abroad. (Part of participation grade.) Final Needs Assessment: As part of this major assignment, students will incorporate community level data and in depth interviews into a needs assessment. Students will complete a paper in which they revise their Needs Assessment Context Paper and combine it with the following elements below to produce a clear, integrated summary of the public health problem they are studying in their catchment area. This assessment should: <ul style="list-style-type: none"> ▪ Identify the specific problem and its public health significance; ▪ Describe the population of interest in terms of relevant population health risk factors in the catchment area; ▪ Describe the population of interest in the catchment area in terms of relevant health outcomes, including the distribution of the

Competency	Course	Assignment(s) that allow assessment
		<p>health outcomes studied in the catchment area at present, over time and in a comparative context;</p> <ul style="list-style-type: none"> ▪ Briefly summarize the literature on what model community programs dealing with the problem of interest should look like; ▪ Summarize the health system in the area; ▪ Explain how the resources available to address the problem compare to the nature and distribution of the problem as described; and ▪ Provide a model describing the nature of the problem in the community. <p>Exercise on Time Series Analysis: Students will be expected to use some method (different approaches will be discussed in class) to examine (in a maximum of 5 pages) how they would prioritize among multiple problems. Students will be expected to:</p> <ul style="list-style-type: none"> ▪ Present data on the status of the four problems over time in a single community of interest ▪ Use one of the models discussed in class and readings to examine how one might prioritize among these, keeping in mind the key question of how a leader would distribute limited resources to address this problem.
	PH 854 - Program and Policy Evaluation	<p>Final Policy/Program Evaluation Plan: Students will design an evaluation plan for this major assignment, which must:</p> <ul style="list-style-type: none"> ▪ Provide a short description of the selected public health problem; ▪ Describe the intervention/program/policy to be evaluated; ▪ Articulate key evaluation questions; ▪ Present a clear logic model; and ▪ Articulate methods used to answer evaluation questions.
	PH 858 - Cases in Public Health Management	<p>Written Case Study and Presentation: Students must write a case study that analyzes a managerial issue and present their cases to the class.</p>
2. Design a qualitative, quantitative, mixed methods, policy analysis or evaluation project to address a public health issue	PH 854 - Program and Policy Evaluation	Final Policy/Program Evaluation Plan: (see Table D3.2.1, competency 1)
	PH 844 - Introduction to Qualitative Analysis for Public Health	Student-led Discussions of Assigned Readings (including synopsis of key points, PowerPoint presentation, and discussion facilitation) and Peer Review (see Table D3.2.1, competency 1)
3. Explain the use and limitations of surveillance systems	PH 851 - Community Needs Assessment and Systems Analysis	Presentation: overview of data sources at the subnational level in the U.S. and abroad. (Part of participation grade.)

Competency	Course	Assignment(s) that allow assessment
and national surveys in assessing, monitoring and evaluating policies and programs and to address a population's health	PH866 - DrPH Leadership Seminar (Fall)	Research to Practice Analysis: Students must prepare an assessment and lead a class discussion on a recent research article for both its methodological quality and its relevance to public health practice.
Leadership, Management, and Governance		
4. Propose strategies for health improvement and elimination of health inequities by organizing stakeholders, including researchers, practitioners, community leaders and other partners	PH 866 - DrPH Leadership Seminar (Spring)	Presentation of a Shared Vision to improve health services in a developing country/particular community to a faculty and student audience playing the roles of diverse teams, stakeholders, and organizations.
	PH853 - Managing and Implementing Public Health Programs	Mock Stakeholder Exercises in planning an intervention included as part of participation grade
5. Communicate public health science to diverse stakeholders, including individuals at all levels of health literacy, for purposes of influencing behavior and policies	PH 851 - Community Needs Assessment and Systems Analysis	<p>Policy Memo: Students will summarize the public health problem they have chosen in a memo to their selected policymaker. The focus in this politically oriented policy memo concerns how practitioners can most effectively influence the agenda process.</p> <ul style="list-style-type: none"> ▪ Students must address why the problem should be of concern to a policymaker who has to address multiple problems on a regular basis. ▪ Students must identify the political implications of this problem in terms of constituencies of interest to the targeted policymaker. Students should assume only the policymaker will read this, so it should be completely explicit about the politics of the problem while being as concrete and specific as possible.
		Final Presentation (aimed at a community audience): Students will make a short presentation and respond to questions from a panel of decision makers in which they will briefly summarize the nature of the public health problem (both in terms of the extent of the problem and the existing services to deal with the problem) in their catchment area and why it would be important for leaders to address.
	PH853 - Managing and Implementing Public Health Programs	Final Presentation to Class Clients/Potential Funders: At the end of the semester, students must present the results of their literature review, their proposed intervention, their communications plan, and their adoption, implementation, and sustainability plan to a panel of public health experts.

Competency	Course	Assignment(s) that allow assessment
6. Integrate knowledge, approaches, methods, values and potential contributions from multiple professions and systems in addressing public health problems	PH853 - Managing and Implementing Public Health Programs	<p>Multi-Part Communications Plan: Students will prepare a paper that</p> <ul style="list-style-type: none"> ▪ Presents the communication strategy through completion of a creative brief; ▪ Updates the Intervention Plan logic model to include communication components, as necessary; ▪ Updates the Intervention Plan flowchart/timeline/Gantt chart to show how the proposed communications campaign will unfold over time, coordinated with the intervention; ▪ Presents six media executions to implement the communications plan, including pitch letter with infographic, press release, commentary/editorial for Public Health Post, and three other media executions of the students' choice; and ▪ Briefly describes the media execution, when the media execution is intended to be implemented, who is the target of the media execution, and the purpose the media execution will serve.
		<p>Adoption, Implementation, and Sustainability Plan (in the form of a programmatic grant proposal for project funding): Students must prepare a response to a programmatic grant opportunity that</p> <ul style="list-style-type: none"> ▪ Describes a plan to ensure program adoption, implementation, and sustainability; ▪ Provides a budget and budget justification; and ▪ Updates the Intervention Plan flowchart/timeline/Gantt chart to show activities related to adoption, implementation, and sustainability, coordinated with the intervention and communications campaign.
		Final Presentation to Class Clients/Potential Funders (see Table D3.2.1, competency 5)
	PH854 - Program and Policy Evaluation	Final Policy/Program Evaluation Plan (see Table D3.2.1, competency 1) and Oral Presentation of Evaluation Plan, in which students give a brief PowerPoint presentation to a panel of public health professional external to the class (Q&A follows).
7. Create a strategic plan	PH853 - Managing and Implementing Public Health Programs	Adoption, Implementation, and Sustainability Plan that incorporates human resources alignment, supplies and facilities management, and information management. (see Table D3.2.1, competency 6)

Competency	Course	Assignment(s) that allow assessment
8. Facilitate shared decision making through negotiation and consensus-building methods	PH866 – DrPH Leadership Seminar (Spring)	Challenge Model Exercises to synthesize measurable results and current situations.
9. Create organizational change strategies	PH853 - Managing and Implementing Public Health Programs	Adoption, Implementation, and Sustainability Plan that looks ahead to measurement, assurance, and improvement of intervention quality. (see Table D3.2.1, competency 6)
	PH858 - Cases in Public Health Management	Written Case Study and Presentation: (see Table D3.2.1, competency1)
	PM835 – Lean Management	A3 Project: Students must prepare a lean management analysis to address problem resolution and promote sustainable change that <ul style="list-style-type: none"> ▪ Identifies the problem and scope; ▪ Includes background on the problem, providing information about the sponsor organization, as well as more specific current state analysis related to the problem, and a literature review, which explores the problem and proposed solutions that have been presented in the literature; ▪ Describes the methodology used to explore the problem; and ▪ Presents a lean management analysis, including root causes and countermeasures.
10. Propose strategies to promote inclusion and equity within public health programs, policies and systems	PH853 - Managing and Implementing Public Health Programs	Adoption, Implementation, and Sustainability Plan that considers issues of equity and inclusion in its development and implementation. (see Table D3.2.1, competency 6)
	PH 866 - DrPH Leadership Seminar (Spring)	Presentation of a Shared Vision to improve health services in a particular community to a faculty and student audience playing the roles of diverse teams, stakeholders, and organizations
11. Assess one’s own strengths and weaknesses in leadership capacities including cultural proficiency	PH 866 - DrPH Leadership Seminar (Fall)	DrPH Competencies Self-Assessment: On the first day of class, students will rank their own levels of mastery of DrPH competencies and, later, revisit/reevaluate these rankings when planning for their practicum experience.
12. Propose human, fiscal and other resources to achieve a strategic goal	PH 853 - Managing and Implementing Public Health Programs	Adoption, Implementation, and Sustainability Plan that incorporates human resources alignment, supplies and facilities management, budget and information management. (see Table D3.2.1, competency 6)
	PH 857 - Health Economics and Financial	Major Budget Assignment: This major assignment will be focused on the

Competency	Course	Assignment(s) that allow assessment
	Management for Public Health	development of a budget to scale up a major program. For this assignment, students will be given a description of the program and information on where to look for resources.
13. Cultivate new resources and revenue streams to achieve a strategic goal	PH 853 - Managing and Implementing Public Health Programs	Adoption, Implementation, and Sustainability Plan budget justification that includes considerations for sustainability of the intervention and communication after startup funding is expended. (see Table D3.2.1, competency 6)
Policy and Programs		
14. Design a system-level intervention to address a public health issue	PH 851 - Community Needs Assessment and Systems Analysis	Final Needs Assessment that targets a system-level change and provides justification for its selection. (see Table D3.2.1, competency 1)
	PH 853 - Managing and Implementing Public Health Programs	Adoption, Implementation, and Sustainability Plan that incorporates human resources alignment, supplies and facilities management, budget and information management. (see Table D3.2.1, competency 6)
15. Integrate knowledge of cultural values and practices in the design of public health policies and programs	PH851 - Community Needs Assessment and Systems Analysis	Political System Analysis and Policy Memo: This assignment, which asks students to foreground community and cultural issues in the measurement of community problems, must include a profile of the politics and health policy system in their catchment area and analyze who or what runs and drives the system formally and informally. (see also Table D3.2.1, competency 5)
	PH853 - Managing and Implementing Public Health Programs	Intervention Plan: Students must submit a paper that incorporates community and cultural issues in the development of community based intervention and <ul style="list-style-type: none"> ▪ Briefly outlines the nature and scope of the health outcome of concern; ▪ Identifies the target group (demographics, geographic location) and justifies this choice; ▪ Identifies the health behavior to be changed and justifies this choice; ▪ Identifies the Public Health Agency responsible for the intervention and for which students will develop their communications plan; ▪ Lists key performance objectives and change objectives that are the focus of the intervention; ▪ Outlines the intervention plan; and ▪ Presents supportive material to describe the plan, including a logic model for the community-based organization's work (both current and proposed intervention components) and a program

Competency	Course	Assignment(s) that allow assessment
		flowchart/timeline/Gantt chart to show the intervention components.
16. Integrate scientific information, legal and regulatory approaches, ethical frameworks and varied stakeholder interests in policy development and analysis	PH851 - Community Needs Assessment and Systems Analysis	Policy Memo targeting a current official focusing on political as well as public health advocacy for a position (see Table D3.2.1, competency 5).
17. Propose inter-professional team approaches to improving public health	PH 866 - DrPH Leadership Seminar (Spring)	Coach teams Through a Breakdown and Apply Factors of Effective Change in the interests of evaluating the needs of teams and organizations with respect to skills and processes necessary to adapt to changing conditions.
Education and Workforce Development		
18. Assess an audience's knowledge and learning needs	PH851 - Community Needs Assessment and Systems Analysis, PH853, PH854 - Program and Policy Evaluation, PH866	Presentations to various audiences (boards, clients, communities, funders) that are sensitive to the needs of the audience involved
19. Deliver training or educational experiences that promote learning in academic, organizational or community settings	PH853 - Managing and Implementing Public Health Programs	Multi-Part Communications Plan that is focused on behavior change in the targeted audience. (see Table D3.2.1, competency 6)
20. Use best practice modalities in pedagogical practices	PH853 - Managing and Implementing Public Health Programs	<p>Intervention Options Presentation: Students will prepare a presentation on alternative approaches to communication that are most effective in encouraging behavior change that</p> <ul style="list-style-type: none"> ▪ Briefly outlines the nature and scope of the health outcome of concern; ▪ Outlines three intervention options that include, for each option, context of the intervention (including geographic area), target population of the intervention (which may be different from the target population of the health problem), outline of the intervention idea including the evidence-base and the performance objectives addressed, considerations for interventions planning (logistical, resources, staffing/management, contextual issues), and a potential public health agency to deliver the intervention.

3) Include the most recent syllabus from each course listed in Table D3.2.1. (electronic resource file)

The syllabi for the required DrPH courses are included in [ERF D3.3.1](#).

4) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)

The DrPH is designed to meet the needs of the field and enrolls doctoral students seeking high-level training in advocacy, finance, leadership, management, and policy. Courses are sequenced in the integrated curriculum so that one course (e.g. PH851 Needs Assessment where students document the needs and resources in a given area) provides the foundation for the next course (PH853 in which students develop an intervention to address gaps between needs and services). Students develop strong individual as well as team-based skills through working with their peers. Students learn a great deal about a variety of public health problems around the world and approaches for addressing them.

As a schoolwide degree, DrPH courses are taught by faculty from across the school's departments, many of whom had prior careers as public health practitioners. Authentic course assessments reflect an understanding of the challenges faced in the field and competencies are learned at progressively deeper levels throughout the curriculum.

Since the program was specifically established to prepare individuals for public health field leadership, there has been less emphasis on DrPH competency 20. Nonetheless the DrPH students receive considerable training in communication which can translate into classroom setting. Many of the DrPH students have served as teaching assistants and in 2016 the school established a Teaching Fellowship which involves a DrPH student in a more active role in supporting one of the new MPH core requirements.

To that end, the DrPH Program has remained focused since its inception on preparing future public health leaders to work in the field and has placed less emphasis on training students for careers in academia. Accordingly, competencies pertaining to pedagogy or promoting learning experiences are addressed but do not receive repeated, thorough emphasis in the DrPH Program.

D4. MPH and DrPH Concentration Competencies

MPH and DrPH graduates attain competencies in addition to the foundational competencies listed in Criteria **D2** and **D3**. These competencies relate to the school's mission and/or to the area(s) of concentration.

The school defines at least five distinct competencies for each concentration or generalist degree at each degree level in addition to those listed in Criterion **D2** or **D3**.

The list of competencies may expand on or enhance foundational competencies, but the school must define a specific set of statements that articulates the depth or enhancement for all concentrations and for generalist degrees. It is not sufficient to refer to the competencies in Criterion **D2** or **D3** as a response to this criterion.

The school documents at least one specific, required assessment activity (eg, component of existing course, paper, presentation, test) for each defined competency, during which faculty or other qualified individuals (eg, preceptors) validate the student's ability to perform the competency. These assessment activities may be spread throughout a student's plan of study.

Because this criterion defines competencies beyond the foundational competencies required of all MPH and DrPH students, assessment opportunities typically occur in courses that are required for a concentration or in courses that build on those intended to address foundational competencies. Assessment may occur in simulations, group projects, presentations, written products, etc.

If the school intends to prepare students for a specific credential (eg, CHES/MCHES) that has defined competencies, the school documents coverage and assessment of those competencies throughout the curriculum.

1) Provide a matrix that lists at least five competencies in addition to those defined in Criterion **D2** or **D3** for each MPH or DrPH concentration or generalist degree, including combined degree options, and indicates at least one assessment activity for each of the listed competencies. Typically, the school will present a separate matrix for each concentration. (self-study document)

Students master five competencies by the conclusion of each MPH or DrPH specialization, as detailed in Tables D4.1.1. – D4.1.11.

Table D4.1.1. Assessment of competencies for the MPH with a certificate in Community Assessment, Program Design, Implementation, and Evaluation

Competency	Course	Assessment
1. Plan and conduct systematic community health needs assessments, integrating multiple sources of data and community and stakeholder input.	SB820: Assessment and Planning for Health Promotion	Exercises #1-7: These exercises include a literature review, problem diagram, census-based neighborhood demographic data, health statistics tables, data collection plan, key informant interview(s), and neighborhood observation report/tables/map. These assignments address the competency because students plan and collect multiple, varied forms of data and incorporate stakeholder input to guide community health needs assessment.

Competency	Course	Assessment
		Final Written Report & Presentation: The purpose of this assignment is to integrate and present the work completed in all other course exercises. Students systematically organize their collective findings into a community health needs assessment report.
2. Synthesize the published evidence base with information identified through community needs assessment to create a comprehensive public health intervention plan, which responds appropriately, and effectively to key identified priorities.	SB806: Communication Strategies for Public Health	Assignment 1: Group paper which outlines health outcome, target group, desired health behavior change overview and justification, performance/behavior/environmental change objectives, and literature review. This assignment represents the background research and information that is necessary to assess community needs, and is the first planning stage to appropriately and effectively address identified needs.
		Assignment 2: Group paper which outlines intervention plan, creative brief, logic model, program flowchart/timeline, and budget. This assignment guides the design of a comprehensive intervention that responds to the needs identified through the first course assignment.
	SB821: Intervention Strategies for Health Promotion	Final Paper and presentation: This includes a problem statement, significance of problem to designated community, strength of evidence basis underlying the intervention, extent to which the program is adapted to a specific community, feasibility of program delivery, and innovation. Students develop a comprehensive intervention plan based on evidence collected through community needs assessment.
		Implementation Plan & Evaluation Plan: Students describe how they would go about getting key stakeholders to implement their intervention in a specific setting, and discuss plans for process and outcome evaluation. These assignments ensure the intervention plan is comprehensive, specifically in that adoption and evaluation have been considered.
	GH744: Program Design for Global Health	E-portfolio: Teams develop an e-portfolio that documents the process and product for each component of the program design process. Students conduct comprehensive research on the organizations and communities they are designing programs for and develop strategies for collaborative partnerships.
GH887: Planning and Managing MCH Programs in Developing Countries	Proposal development and presentation: Teams are asked to respond to an RFP, develop a proposal for an MCH intervention, and present their proposal to a grants committee. Students plan a proposal based on a community need within MCH, including a situation analysis, based on multiple data sources and community input.	

Competency	Course	Assessment
3. Formulate an implementation and sustainability plan designed to engage community members, policy makers, practitioners, funders and researchers.	SB820: Assessment and Planning for Health Promotion	Exercise #9 - Communications Product: Students present key assessment findings to different audiences using an op-ed or infographic format. They create an engaging piece of material to inform various audiences.
	SB821: Intervention Strategies for Health Promotion	Implementation Plan: Students describe how they would go about getting key stakeholders to adopt/implement their intervention in a specific setting. This assignment ensures that sustainability of the intervention plan has been considered.
	MC802: Implementing Community Health Initiatives: A Field-Based Course in Leadership and Consultation	Final Consultation Report and Presentation: Students work in teams to prepare a written consultation report and present it to community partners, including background and significance of their project, results, conclusions/recommendations, and tools for implementation and sustainability. Students incorporate a monitoring and evaluation plan in their consultation report as well as a sustainability plan.
	GH887: Planning and Managing MCH Programs in Developing Countries	Proposal development and presentation: Teams are asked to respond to an RFP, develop a proposal for an MCH intervention, and present their proposal to a grants committee. Students formulate their intervention plan based on SMART objectives, create a detailed work plan, and consider how their intervention can be monitored and evaluated for sustainability.
	GH745: Monitoring and Evaluation of Global Health Programs	Evaluation Portfolio: Students choose an existing public health or social program and work in teams to design a realistic evaluation using mixed quantitative and qualitative methods. Students develop an analysis plan and dissemination strategy, in order to engage their stakeholders.
4. Design a program evaluation, including formative, process and impact evaluation, and be able to articulate a plan for evaluation using a standard logic model.	SB822: Quantitative Methods for Program Evaluation	Evaluation Proposal: Students develop an evaluation proposal for a public health intervention. This assignment asks students to design an evaluation of an intervention, following in-depth lessons on program evaluation, outcome evaluation, and process evaluation, as well as practiced development of logic models.
	GH745: Monitoring and Evaluation of Global Health Programs	Evaluation Portfolio: Students choose an existing public health or social program and work in teams to design a realistic evaluation using mixed quantitative and qualitative methods. Students design a comprehensive logic model and evaluation plan.
5. Apply strategies for equitable, collaborative partnerships with communities, based on common	MC775: Social Justice and the Health of Populations: Racism and Other Systems of	Descriptive Statistics short-report: Students use data reports/articles/tables to describe patterns of a health outcome in text and pictures. They seek out data in order to recognize and identify some of the community assets as well as barriers to health equity that are present within a specific population.

Competency	Course	Assessment
recognition of sources of structured social privilege and disadvantage and a shared goal of seeking to expand community assets and power to improve health outcomes	Oppression in American Inequities	Health Equity Research Article Critique: Students find and read a scholarly research article which describes a socio-demographic disparity/inequity in a specific health outcome, and critique the research to determine if it accurately and adequately describes and explains the source of social pattern(s) of the health outcome. They practice identifying strengths and weaknesses of research specifically through the lens of recognizing health inequities.
		Final Report and Presentation: Students evaluate a health program for its equity capacity and effectiveness. This assignment asks students to critically analyze programs based upon their capacity to create equitable, collaborative partnerships with communities and to attenuate health inequities.
	MC802: Implementing Community Health Initiatives: A Field-Based Course in Leadership and Consultation	Final Consultation Report and Presentation: Students will work in teams to prepare a written consultation report and present it to community partners, including background and significance of their project, results, conclusions/recommendations, and tools for implementation and sustainability. Students partner directly with community organizations to complete their consultation report, recognizing challenges and significance to their community partner as well as within the larger context of community health.
		Reflection Journals: Students reflect upon what they learn about consultation in the context of community partnerships, including what is needed to make change in community health organizations. They discuss strategies for collaboration with their assigned community partners, including recognition of challenges and barriers to improving health outcomes.
	PH801: Community-Engaged Research: Theory Methods and Applications	Final Research Project: Students develop a proposal to conduct a community-engaged research study or project in response to a community concern or question on a health-related topic. The proposals are based on existing literature and apply what they find to their methods in order to develop a collaborative project that engages the community and takes into account any prior community needs assessments that may have been conducted.
	GH744: Program Design for Global Health	E-portfolio: Teams develop an e-portfolio that documents the process and product for each component of the program design process. Students conduct comprehensive research on the organizations and communities they are designing programs for and develop strategies for collaborative partnerships.

Table D4.1.2. Assessment of competencies for the MPH with a certificate in Design and Conduct of Public Health Research

Competency	Course	Assessment
1. Evaluate relative strengths and weaknesses of various study designs to address a specific public health research question	BS740: Design and Conduct of Public Health Research	Group Project: Students develop an analytic plan to address a public health research question, including discussion of strengths and limitations of the study design.
	GH811: Applied Research Methods in Global Health	Group Research Report: Students conduct a literature review relating to a specific public health research question.
	EP721: Survey Research Methods	Project: Students design a survey project and must defend, in writing, their decisions in relation to other alternative designs, particularly as it relates to mode of data collection, source of data, and study population.
	SB818: Qualitative Research Methods	Final Paper: Students evaluate strengths and weaknesses of qualitative research designs, including in-class discussion of their research problem.
2. Identify methodological and practical issues involved with planning and implementing a public health research study, including issues relating to the responsible conduct of research and the protection of human subjects	BS740: Design and Conduct of Public Health Research	Homework Exercises: Students create an informed consent form from a research protocol, using the template from the BUMC IRB. Students complete the BUMC human subjects certification required of all medical center researchers.
	GH811: Applied Research Methods in Global Health	Group Research Report: Students develop a data collection plan addressing methodological and practical issues related to the research question.
	SB818: Qualitative Research Methods	Final Paper: Students evaluate strengths and weaknesses of qualitative research designs, including in-class discussion of their research problem. Using the sampling exercises, students evaluate different sampling strategies for qualitative research.
3. Identify, access, and evaluate public health data sets with respect to addressing a public health research question, such as the CDC's Behavioral Risk Factor Surveillance System	BS723: Introduction to Statistical Computing	Project: Students are required to access public health data saved in a variety of formats.
	BS730: Intro to R	Project: Students are required to access public health data saved in a variety of formats.
	BS740: Design and Conduct of Public Health Research	Group Project: Students access publicly available public health data sets, determine details about the data set, and direct a statistical analysis.
4. Identify, conduct, and interpret an appropriate statistical analysis for a given public health research question and study design	BS723: Introduction to Statistical Computing	Final Project: Students are given public health research questions and data sets, and asked to identify, carry out, and interpret an appropriate statistical analysis.
	BS730: Intro to R	Final Project: Students are given public health research questions and data sets, and asked to identify, carry out, and interpret an appropriate statistical analysis.

Competency	Course	Assessment
	BS740: Design and Conduct of Public Health Research	Group project: Students develop a public health research question that can be addressed through a public health data set and design an analysis plan. Students direct the statistical analysis, present, and interpret the findings in a poster presentation.
	GH811: Applied Research Methods in Global Health	Group research report and presentation: Students conduct and interpret statistical analyses relating to their research question.
5. Interpret and communicate the results, strengths, and limitations of a public health research article in both technical and non-technical terms	BS740: Design and Conduct of Public Health Research	Homework exercise: Students explain and interpret information from tables and figures presented in the public health literature.
	GH811: Applied Research Methods in Global Health	Group research report: Students conduct a literature review, weighing strengths and limitations of studies, relating to their research question.

Table D4.1.3. Assessment of competencies for the MPH with a certificate in Environmental Hazard Assessment

Competency	Course	Assessment
1. Collect and analyze environmental data and articulate the characteristics of major chemical, physical, and biological hazards	EH730: Methods in Environmental Health Sciences	Environmental Data Collection and Analysis project: This independent project allows each student to design a soil sampling or water-sampling plan, collect samples and analyze the data with the objective of evaluating exposures to arsenic, manganese and lead. They clean the datasets, determine whether the data are normally distributed (and if not, how to use them). They calculate summary statistics, compare the data with relevant standards and guidelines and the primary literature to interpret their findings in order to articulate the characteristics of the chemical hazards to relevant stakeholders.

Competency	Course	Assessment
		<p>Non-technical memo (to general audience): Environmental Data Collection and Analysis project. This independent project allows each student to design a soil sampling or water-sampling plan, collect samples and analyze the data with the objective of evaluating exposures to arsenic, manganese and lead. They clean the datasets, determine whether the data are normally distributed (and if not, how to use them). They calculate summary statistics, compare the data with relevant standards and guidelines and the primary literature to interpret their findings in a single page memo and orally in order to articulate the potential health risks and interventions that are necessary to protect the community health.</p>
	EH705: Toxicology for Public Health	<p>Homework 1: Students read an article about fracking. They must identify 3 toxic agents in fracking fluid and characterize them, identify the routes and timing of exposure for the general population and workers, identify potential adverse health outcomes. This assessment requires students to identify and classify multiple toxic agents and articulate those findings.</p>
		<p>Homework 4: Students assess the characteristics of a toxicant that will influence its absorption following oral exposure. They also calculate the bioavailability of a chemical via different routes of exposure and identify the route of exposure most likely to result in significant toxicity. This assessment allows students to analyze bioavailability data.</p>
		<p>Homework 6: Students analyze biotransformation data in several species and explain how differences in biotransformation relate to potential for toxicity indicated by difference in LD50s. Students also plot and evaluate elimination data. This assessment requires students to analyze and interpret biotransformation, toxicity and elimination data.</p>
		<p>Homework 9: Students investigate mechanisms of action of endocrine disrupting toxicants. Students are provided dose response data from which they must compare potencies and efficacies of different endocrine disruptors and from which they must calculate a reference dose. This assignment requires students to analyze dose response data, as well as to calculate a reference dose from dose response data.</p>
2. Interpret measured or modeled concentrations or	EH730: Methods in Environmental Health Sciences	<p>Environmental Data Collection and Analysis project: This independent project allows each student to design a soil sampling or water-sampling plan, collect</p>

Competency	Course	Assessment
doses of hazards compared with risk-based and non-risk based criteria and guidelines		samples and analyze the data with the objective of evaluating exposures to arsenic, manganese and lead. They clean the datasets, determine whether the data are normally distributed (and if not, how to use them). They calculate summary statistics, compare the data with relevant standards and guidelines and the primary literature to interpret their findings in order to interpret measured or modeled concentrations or doses of hazards compared with risk-based and non-risk based criteria and guidelines.
		Homeworks (all three): Student are provided with a situation in which environmental data or health outcome data are provided in a scenario that may face a community. The student is asked to query on-line and publication-based databases to identify relevant local, state, federal and international guidelines and standards in order to interpret the measured or modeled concentrations or doses of hazards compared with the risk-based and non-risk based criteria and guidelines.
	EH705: Toxicology for Public Health	Homework 2: Students are given dose response data. They are required to generate a dose response curve and to interpret dose response data. This assessment requires students to generate dose response analyses from primary toxicological data, and to identify risk assessment-related values.
		Homework 9: Students investigate mechanisms of action of endocrine disrupting toxicants. Students are provided dose response data from which they must compare potencies and efficacies of different endocrine disruptors and from which they must calculate a reference dose. This assignment requires students to calculate a reference dose from dose response data and to compare their calculated RfD with current RfDs for phthalates.
3. Evaluate the influence of susceptibility based on a hazards' biological mode of action, and vulnerability on health risks for major environmental	EH757: Environmental Epidemiology	Term paper and presentation (design detailed environmental epidemiology study): Grading is based primarily on approach: does the design appropriately address specific aims; does the design demonstrate knowledge of how to critique epidemiology studies; are strengths and weaknesses appropriately discussed?
	EH804: Exposure Assessment	Problem set #1: Students are provided a realistic exposure data set and asked to respond to a series of questions to evaluate the quality of data based on pre-established criteria.

Competency	Course	Assessment
determinants of human disease	EH840: Advanced and Emerging Topics in Toxicology	Homework 8: Students create a table comparing asbestos and mercury induced immunotoxicity and discuss the contribution of differences in genetic factors relative to risk of developing toxicant-induced autoimmune disease. Students also interpret acetylcholinesterase data in light of chlorpyrifos exposure, PON1 status, and relative levels of CYP expression. This assessment meets the competency by requiring students to identify genetic differences in individuals that contribute to risk of adverse health outcomes following exposure to specific toxicants.
	EH866: Risk Assessment Methods	Final project (complete own risk assessment): The final project begins at the start of the course where students conduct an EPA-type risk assessment on a chemical or other hazard of their choice. This project involves hazard, exposure and dose-response assessment and a quantitative uncertainty analysis. In addition to preparation of the final technical report, students also communicate the findings orally to the impacted community. Students collect their own environmental data, research data or published data for a single or multiple hazards and use those data in a risk assessment. The exposure and dose response analyses require students to assess vulnerable populations and to examine the toxicity values and their derivation based on studies that protect the most sensitive sub-populations. In conducting this risk assessment, students evaluate the influence of susceptibility based on a hazards' biological mode of action, and vulnerability on health risks for major environmental determinants of human disease.
4. Identify defensible intervention and prevention strategies to improve health through reduction in exposures to environmental hazards	EH730: Methods in Environmental Health Sciences	Non-technical memo (to general audience): As part of the Environmental Data Collection and Analysis project, each student designs a soil sampling or water-sampling plan, collect samples and analyze the data with the objective of evaluating exposures to arsenic, manganese and lead. They clean the datasets, determine whether the data are normally distributed (and if not, how to use them). They calculate summary statistics, compare the data with relevant standards and guidelines and the primary literature to interpret their findings in a single page memo and orally in order to articulate the potential health risks and they identify defensible intervention and prevention strategies to improve health through reduction in exposures to environmental hazards.

Competency	Course	Assessment
		Homeworks (all three): Students are asked to use the exposure-disease model in a variety of situations drawn from the literature, news cycle, and experience of the instructors. Examples include lead in tap water, PFAS in cooking pots, bacteria in foods, noise from airports, and students are asked to Identify defensible intervention and prevention strategies to improve health through reduction in exposures to environmental hazards.
5. Critically assess articles related to environmental impacts on health, analyzing the strength and validity of the hypothesis, study design and methods, results, conclusions, and public health significance of primary research studies	EH730: Methods in Environmental Health Sciences	Homeworks and take-home midterm: Students are assigned sentinel and recent articles from the peer-reviewed literature (including articles on the association of blood lead levels and health outcomes in young children, outcomes in workers and their children due to pesticide exposure and those that are based on outcomes that are self-reported (such as for wind turbine exposures). Students summarize the papers and critically assess articles related to environmental impacts on health, analyzing the strength and validity of the hypothesis, study design and methods, results, conclusions, and public health significance of primary research studies
	EH705: Toxicology for Public Health	Homework 3: Students access the Environmental Health Perspectives website and perform a search to identify a paper that investigates a nuclear receptor that is involved in endocrine disruption. From the paper, the student must identify the nuclear receptor, the natural ligand, the physiological role of the receptor, an endocrine disruptor that binds to the receptor, and whether the endocrine disruptor increases or decreases the activity of the receptor. This assessment requires that students search a journal, identify a paper that addresses the question, and identify information in the paper that addresses the question.

Table D4.1.4. Assessment of competencies for the MPH with a certificate in Epidemiology and Biostatistics

Competency	Course	Assessment
1. Calculate and apply appropriate epidemiologic and statistical measures to draw valid inferences and summaries from public health data	BS723: Introduction to Statistical Computing	Final Project: Students perform the following tests using SAS and interpret the results: pair and two-sample t-tests; chi-square analysis; one-way ANOVA; correlation and simple regression; simple logistic regression; ANCOVA and multiple linear regression; multivariable logistic regression; nonparametric Wilcoxon Signed Rank and Rank Sum tests.
	BS730: Intro to R	Final Project: Students apply numerical, tabular, and graphical descriptive techniques to characterize and summarize public health data. Applying the statistical methods for hypothesis testing and regression modeling using R.

Competency	Course	Assessment
	EP770: Concepts and Methods of Epidemiology	Workshops 1-2, 5-8: Students calculate appropriate epidemiologic measures to draw valid inferences from various datasets. Data Analysis Project: Students analyze publicly available data, and calculate appropriate epidemiologic measures to draw valid inferences using Excel.
2. Evaluate the strengths and limitations of epidemiologic and statistical reports from public health studies.	EP730: Epidemiology of Vaccine-Preventable Diseases	Design a Study: Students apply critical evaluation skills to design an epidemiologic study, proactively, to address a specific hypothesis that limits common methodological issues.
	EP752: Cancer Epidemiology	Final Paper and Presentation: Students apply critical evaluation skills to design an epidemiologic study, proactively, to address a specific hypothesis that limits common methodological issues.
	EP740: Introduction to the Epidemiology of Aging	Journal Club: Students critically evaluate the strengths and limitations of peer-reviewed epidemiologic papers.
		Course Paper and Presentation: Students apply critical evaluation skills to design an epidemiologic study, proactively, to address a specific hypothesis that limits common methodological issues.
	EP764: The Epidemiology of HIV/AIDS in the Developed and Developing World	Written Critiques: Students conduct a critical evaluation of peer-reviewed epidemiologic papers in a write-up, including strengths, limitations and methodologic issues.
	EP775: Social Epidemiology	Written Critiques: Students conduct a critical evaluation of peer-reviewed epidemiologic papers in a write-up, including strengths, limitations and methodologic issues.
		Team Project: Students work in teams to apply critical evaluation skills to design an epidemiologic study, proactively, to address a specific hypothesis that limits common methodological issues.
	EP784: The Epidemiology of Tuberculosis in the Developed and Developing World	Written Critiques: Students conduct a critical evaluation of peer-reviewed epidemiologic papers in a write-up, including strengths, limitations and methodologic issues.
	EP790: Mental Health Epidemiology	Journal Club: Students critically evaluate the strengths and limitations of peer-reviewed epidemiologic papers.
EH757: Environmental Epidemiology	Written Critiques: Students conduct a critical evaluation of peer-reviewed epidemiologic papers in a write-up, including strengths, limitations and methodologic issues.	

Competency	Course	Assessment
		Final Paper and Presentation: Students apply critical evaluation skills to design an epidemiologic study, proactively, to address a specific hypothesis that limits common methodological issues.
	EP770: Concepts and Methods of Epidemiology	Workshops 3-5: Student critically evaluate strengths and limitations of peer-reviewed epidemiologic papers in a write-up.
	EP748: Drug Epidemiology	Written Critiques: Students conduct a critical evaluation of peer-reviewed epidemiologic papers in a write-up, including strengths, limitations and methodologic issues.
	EP755: Infectious Disease Epidemiology	Workshop 1: Students demonstrate an understanding of principles and methods of ID Epi, including an evaluation of study designs used to study infectious diseases.
	EP758: Nutritional Epidemiology	Written Critiques: Students conduct a critical evaluation of peer-reviewed epidemiologic papers in a write-up, including strengths, limitations and methodologic issues.
		Team Project: Students work in teams to design an epidemiologic study, proactively, to address a specific hypothesis that limits common methodological issues, weighing strengths and limitations of different approaches.
	EP759: Reproductive Epidemiology	Written Critiques: Students conduct a critical evaluation of peer-reviewed epidemiologic papers in a write-up, including strengths, limitations and methodologic issues.
	EP857: Design and Conduct of Cohort Studies	Written Critiques: Students conduct a critical evaluation of peer-reviewed epidemiologic papers in a write-up, including strengths, limitations and methodologic issues.
		Final Project: Students apply critical evaluation skills to design an epidemiologic study, proactively, to address a specific hypothesis that limits common methodological issues.
EP858: Design and Conduct of Case-Control Studies	Design a Study: Students apply critical evaluation skills to design an epidemiologic study, proactively, to address the collection and analysis of repeated measures data.	
3. Analyze key sources of public health data, reflecting	EP850: Applications of Intermediate Epidemiology	CITI Training: Students complete online modules and earn certificates of competency in human subjects protections and HIPAA

Competency	Course	Assessment
comprehension of the basic ethical and legal principles pertaining to the collection, maintenance, analysis, and dissemination of epidemiologic and public health information.	PH845: Integrative Learning Experience	CITI Training: Students complete online modules and earn certificates of competency in human subjects protections and HIPAA
4. Synthesize the results of epidemiologic and statistical analyses to craft public health messages in written and oral presentations for both public health professionals and external audiences.	BS820: Logistic Regression and Survival Analysis	Homework: Students interpret estimates and hypothesis tests obtained from regression models that have been fit to survival data.
	BS852: Statistical Methods in Epidemiology	Project: Students verbally describe confounding in your results (interpret and communicate results from analyses that control for confounding including an evaluation of interaction)
	EP730: Epidemiology of Vaccine-Preventable Diseases	Design a Study: Students apply critical evaluation skills to proactively design a epidemiologic study to address a specific hypothesis that limits common methodological issues, including synthesis of a clear public health message.
	EP752: Cancer Epidemiology	Final Paper and Presentation: Students proactively design an epidemiologic study to address a specific hypothesis that limits common methodological issue, including an oral presentation to the class.
	EP740: Introduction to the Epidemiology of Aging	Course Paper and Presentation: Students proactively design an epidemiologic study to address a specific hypothesis that limits common methodological issues, including an oral presentation to the class.
		Journal Club: Students critically evaluate the strengths and limitations of peer-reviewed epidemiologic papers, including an oral presentation to the class.
	EP764: The Epidemiology of HIV/AIDS in the Developed and Developing World	Written Critiques: Students conduct a critical evaluation of peer-reviewed epidemiologic papers in a write-up, including synthesis of previous evidence to communicate a clear public health message.
	EP784: The Epidemiology of Tuberculosis in the Developed and Developing World	Written Critiques: Students conduct a critical evaluation of peer-reviewed epidemiologic papers in a write-up, including synthesis of previous evidence to communicate a clear public health message.
EP790: Mental Health Epidemiology	Journal Club: Students critically evaluate the strengths and limitations of peer-reviewed epidemiologic papers, including an oral presentation to the class.	

Competency	Course	Assessment
		Final Project: Students articulate multiple perspectives on psychiatric disorders, including those of consumers/patients, providers and families; and be able to integrate these perspectives into their thinking about the epidemiology of mental health.
	EH757: Environmental Epidemiology	Final Paper and Presentation: Students apply critical evaluation skills to design an epidemiologic study, proactively, to address a specific hypothesis that limits common methodological issues, including an oral presentation to the class.
	EP850: Applications of Intermediate Epidemiology	Final Project and Presentation: Students conduct an applied data analysis using publicly available datasets, including an oral presentation to the class.
5. Demonstrate the application of epidemiology and biostatistics for informing etiologic research, planning and evaluation of interventions, public health surveillance or health policy.	BS820: Logistic Regression and Survival Analysis	Homework: Diagnose inconsistencies between survival regression models and data using SAS.
	BS805: Intermediate Statistical Computing and Applied Regression Analysis	Project: Identify the assumptions, limitations, and results of common statistical procedures for research in public health. These procedures include multi-factorial ANOVA, multivariate regression and ANCOVA, analysis of repeated measures, logistic regression, and survival analysis.
	BS851: Applied Statistics in Clinical Trials I	Homework: Students apply statistical analysis to continuous, dichomous, and time-to-event data from a clinical trial
	BS852: Statistical Methods in Epidemiology	Project: Students design studies to remove confounding (use randomization, restriction or matching in studies; design studies to collect information from potential confounders; recognize the application of matching in studies to control for potential confounding)
	EP730: Epidemiology of Vaccine-Preventable Diseases	Design a Study: Students proactively design an epidemiologic study to address a specific hypothesis that limits common methodological issues, demonstrating the application of epidemiology for informing etiologic research and public health surveillance.
	EP752: Cancer Epidemiology	Final Paper and Presentation: Students apply critical evaluation skills to design an epidemiologic study, proactively, to address a specific hypothesis that limits common methodological issues, demonstrating the application of epidemiology for informing etiologic research.

Competency	Course	Assessment
	EP740: Introduction to the Epidemiology of Aging	Course Paper and Presentation: Students proactively design an epidemiologic study to address a specific hypothesis that limits common methodological issues, including an oral presentation to the class, demonstrating the application of epidemiology for informing etiologic research.
	EP764: The Epidemiology of HIV/AIDS in the Developed and Developing World	Written Critiques: Students conduct a critical evaluation of peer-reviewed epidemiologic papers in a write-up, including synthesis of previous evidence to communicate a clear public health message, demonstrating the application of epidemiology for informing etiologic research.
	EP770: Concepts and Methods of Epidemiology	Data Analysis Project: Students analyze publicly available data, and synthesize a public health message based on findings, demonstrating the application of epidemiology for informing etiologic research.
	EP784: The Epidemiology of Tuberculosis in the Developed and Developing World	Written Critiques: Students conduct a critical evaluation of peer-reviewed epidemiologic papers in a write-up, including synthesis of previous evidence to communicate a clear public health message, demonstrating the application of epidemiology for informing etiologic research.
	EP790: Mental Health Epidemiology	Final Project: Students articulate multiple perspectives on psychiatric disorders, including those of consumers/patients, providers and families; and be able to integrate these perspectives into their thinking about the epidemiology of mental health, demonstrating application of epidemiology for information etiologic research and touching on health policy.
	EH757: Environmental Epidemiology	Final Paper and Presentation: Students apply critical evaluation skills to proactively design and orally present an epidemiologic study to address a specific hypothesis that limits common methodological issues, demonstrating application of epidemiology for informing etiologic research.
	EP758: Nutritional Epidemiology	Team Project: Students work in teams to design an epidemiologic study, proactively, to address a specific hypothesis that limits common methodological issues, demonstrating the use of epidemiology to inform etiologic research.

Table D4.1.5. Assessment of competencies for the MPH with a certificate in Health Communication and Promotion

Competency	Course	Assessment
1. Design a communication strategy that is theory-driven, science-based, audience-centered, practicable, and evaluable.	SB733: Mass Communication and Public Health	Final Project and Presentation: Students work in groups to develop a mass media-based initiative to promote health behavior change or to advance policy for a specific public health problem. Students present their projects to classmates during the final class. The communications strategies developed are driven by science-based public communication theories discussed early in the semester and are designed after extensive discussion of how various media channels can be used to reach specific audiences. The assignment also incorporates strategies for evaluating the communications strategy developed.
2. Apply a range of appropriate communication venues to support public health goals based on analysis and evaluation of alternative venues.	SB733: Mass Communication and Public Health	Final Project and Presentation: Students work in groups to develop a mass media-based initiative to promote health behavior change or to advance policy for a specific public health problem. Students present their projects to classmates during the final class. Throughout the semester, students examine a wide range of venues for communicating about health, including social marketing, websites, corporate social responsibility campaigns, press interviews, infographics, and media advocacy campaigns. Through the completion of the final project/presentation, students demonstrate their ability to analyze, evaluate, and develop appropriate communications materials from a range of venues they learn about throughout the course.
	SB806: Communication Strategies for Public Health	Assignment 3: Students prepare 6 media executions to implement a communications plan, including but not limited to a pitch letter, press release, commentary/editorial, press event, online discussion board/forum, video, social media, letter to the editor, blog etc. Students examine and develop materials for a wide range of communications venues.
3. Create effective materials and messages using strategies and tools tailored to diverse audiences, including those with lower health literacy.	SB813: Web-Based Health Communication Strategies	Final Design Document and Website Prototype: This paper includes a detailed overview of the formative research that was conducted prior to building the website, including competitive analysis and user/expert input, audience segmentation, usability testing with 3 participants, and the resulting website prototype design, including a homepage, "about" page, and 2 internal pages. Students perform an audience segmentation exercise and secure input from various users/experts to guide the development of their project.

Competency	Course	Assessment
	SB833: Designing and Implementing a Public Health Communications Campaign	Group projects: There are two major team assignments: The first has students deliver a creative brief and communication strategy for an existing client based on meetings and ongoing client interactions. The second project has students develop, produce, test, and deliver a short video that is delivered to their client. Students must demonstrate an understanding of a particular audience in order to design and deliver a piece of communication that will be effective, while also being understood and effective on a broad scale.
	SB860: Strategies for Public Health Advocacy	Communications Plan Materials: This includes a framing memo outlining the frames being used by proponents and opponents of a public health policy, a press release intended to gain media attention on the public health topic outlined in the framing memo, an op-ed to execute the strategy outlined in their framing memo, and the development of written testimony to be delivered at a mock legislative hearing. Students develop tailored messaging aimed at policymakers and produce written materials tailored to the media and the general public.
	MC730: Leading to Face Challenges and Receive Results in Public Health	Teamwork facilitation of leadership exercise session: Students prepare and facilitate a class session on leadership and team effectiveness practices, enabling their classmates to learn how to use these practices. Students are asked to create messaging and craft a lesson using a wide range of tools and strategies to engage an audience of their peers.
	MC785: Reproductive Health Advocacy: From Rights to Justice	Lobbying Meetings and Fact Sheet: Students meet with legislative aides to learn about the legislative process and with 2-3 representatives/senators to hear stories of law-making related to sexual and reproductive health. A fact sheet will be created in support of a position on an issue or in process bill. Students are designing a communications material tailored to a specific audience, with the intention to inform lawmakers and inspire support, and are doing so in a concise format.
		Letter to the Editor, Op-Ed, and Storify assignments: Students write a letter to the editor in response to a newspaper editorial or article of their choosing, develop an op-ed piece directed at a specific audience/news outlet, and establishes themselves as a presence on Twitter and catalog conversations via Storify. Students develop different communications tools, each requiring an understanding of how to best utilize the tool to best convey their message to their audience.

Competency	Course	Assessment
	MC802: Implementing Community Initiatives	Final Consultation Report and Presentation: Students work in teams to prepare a written consultation report and present it to community partners, including background and significance of their project, results, conclusions/recommendations, and tools for implementation and sustainability. Students undergo a process of deep understanding of a particular organization's needs and stakeholders, and construct clear, individualized messaging to help them with a challenge.
	GH804: mHealth	Final Consulting Report and Presentation: Students work on teams to build an mHealth application based on a real project need provided by an international public health organization, and develop/deliver a 10-minute presentation on the project. This includes needs assessment, program and solution proposal, and user's guide/training guide. Students construct tailored messaging based on their client's needs and utilize a wide range of tools and materials to work collaboratively on their report.
	PH712: Public Health Responses to Emergencies in the United States	Team Presentations: Students work on discipline-specific teams to explore issues through a specific lens, and present how their discipline will carry out functions of an emergency management cycle. The crisis communications materials and strategic plan developed must be framed within a broad discipline, yet concise enough to be clearly understood by lay audiences of various backgrounds.
4. Develop an evaluation plan for a communication strategy.	SB806: Communication Strategies for Public Health	Assignment 2: Group paper which outlines intervention plan, creative brief, logic model, program flowchart/timeline, and budget. This assignment includes a detailed intervention plan, including a process/timeline for the plan and a logic model, are developed to appropriately assess feasibility and effectiveness of a proposed communications campaign.
5. Demonstrate professional oral presentation skills to inform and persuade diverse audiences.	SB818: Qualitative Research Methods	Final Presentation: Students present their final research proposals to the class. This involves using the results of class projects as preliminary data to develop a proposal for a research study, including an outline of preliminary studies, research significance, and methods. Students create and deliver a presentation, which concisely and effectively summarizes their data in a manner that is easily understood by various audiences.

Competency	Course	Assessment
	SB833: Designing and Implementing a Public Health Communications Campaign	Group Projects and Final Group Presentation: There are two major team assignments. The first has students deliver a creative brief and communication strategy for an existing client based on meetings and ongoing client interactions. The second project has students develop, produce, test, and deliver a short video that is delivered to their client. Lastly, students present the design process, development, and implementation of this campaign. These assignments require students to practice presenting in a clear and effective manner, the results of their communications campaign which is grounded in an understanding of their client.
	SB860: Strategies for Public Health Advocacy	Written Testimony/Mock Legislative Hearing: Students develop written testimony and deliver the testimony at a mock legislative hearing. Students prepare for and gain experience in delivering an oral testimony, communicating in support of or against a specific public health policy.
	MC730: Leading to Face Challenges and Receive Results in Public Health	Teamwork facilitation of leadership exercise session: Students prepare and facilitate a class session on leadership and team effectiveness practices, enabling their classmates to learn how to use these practices. Students prepare and deliver a clear and effective presentation about leadership that is focused on the needs of their audience group.
	MC802: Implementing Community Initiatives	Final Consultation Report and Presentation: Students will work in teams to prepare a written consultation report and present it to community partners, including background and significance of their project, results, conclusions/recommendations, and tools for implementation and sustainability. Students work across the semester with community partners to identify their needs, and ultimately develop and deliver a clear and effective presentation, which outlines the results of their consultation work.
	GH804: mHealth	Final Consulting Report and Presentation. Students work on teams to build a mHealth application based on a real project need provided by an international public health organization, and develop/deliver a 10-minute presentation on the project. This includes needs assessment, program and solution proposal, and user's guide/training guide. Students gain an understanding of their clients' needs over the course of the semester and develop/present clear and tailored recommendations to them in the form of a mHealth product.

Competency	Course	Assessment
	PH712: Public Health Responses to Emergencies in the United States	Team Presentations: Students work on discipline-specific teams to explore issues through a specific lens, and present how their discipline will carry out functions of an emergency management cycle. This assignment allows students to deliver a presentation that informs and persuades a diverse audience on the topic of how and why their emergency management plan will be effective.
	PM785: Intro to Mental Health Advocacy	Advocacy Project Draft/Final Report Components: Students develop a mental health/substance abuse advocacy idea and present their work via a paper and brief oral presentation. The project includes identification and background of the problem, description of strategy/coalition to be assembled, identification of the target audience/attitude that needs to be changed, identification of key informants, and project description- procedures, timeline, and evaluation. Students deliver a presentation that is targeted towards the specific audience they are trying to reach via their advocacy campaign, in turn demonstrating their understanding of the needs of diverse audiences.

Table D4.1.6. Assessment of competencies for the MPH with a certificate in Healthcare Management (CAHME)

Competency	Course	Assessment
1. Analyzes how the structures, processes and outcomes observed in the organization, delivery, and financing of health services in the U.S. are related both to one another and to historical and contextual influences, and can compare these aspects of the US system to those in	PM735: Healthcare Finance: How Policymakers and Managers Can Use money as a Tool to Improve Healthcare, or	Exercises 3, 5, 6, 8, 10, 11, 13: Each of these exercises corresponds and aligns with specific topics relating to the analysis of financing of health services in the U.S. These assignments address student understanding of numerous issues of health services financing and analyze specific scenarios and problems that are seen in many US and other nations. They include basic calculations and case-type problems.
	PM736: Human Resource Management in Public Health	Mini-presentations on current events articles related to HR in healthcare: Students perform presentations that address current issues in HR in healthcare and how their roles as managers are influenced by, or will influence the specific health care delivery issue. Students find articles and news stories on current health care organization, delivery, and financing issues and discuss how they have implications for US and global health care services

Competency	Course	Assessment
other developed nations.	PM755: Healthcare Delivery Systems: Issues and Innovations	Independent project with new policy and implementation steps: Students examine a specific health care delivery issue and understand the problem, key stakeholders, and then perform a presentation with conclusions and recommendations. Students must find and investigate a current health care delivery system issues and understand the implications of this issue on US and sometimes-global health care services delivery, organization and financing.
2. Applies economic and political analysis to understand causes of high costs associated with the delivery of health care services in the U.S. and develops and evaluates the effectiveness of possible remedies (or solutions).	PM734: Principles and Practices in Non-Profit Healthcare Accounting	Group Project/Presentation: Students work collaboratively to use economic and financial analysis of a health care delivery issue. They present possible recommendations for the issues. This assignment has student work collaboratively to identify an economic issue, analyze it using techniques learned in the course, and evaluate and select potential solutions.
3. Analyzes the current policy issues that face U.S., state and local communities; evaluates policies in terms of their effectiveness, efficiency and equity; and understands the factors influencing successful policy implementation.	PM755: Healthcare Delivery Systems: Issues and Innovations	Policy brief with implementation steps: Students work individually to prepare a written report that addresses a current policy issue, assess the issue, and provide recommendations and implementation steps to take action on the issue. This assignment affords students the opportunity to analyze a policy issue and provides them an opportunity to reflect on what specific factors related to the policy are critical to successful implementation.

Competency	Course	Assessment
4. Assesses how political, organizational and occupational structures, cultures, and norms influence the ways in which health care is allocated and provided, analyze how these factors affect changes in health policy and/or systems, and develop strategies to promote an organization's or constituency's position.	PM827: Strategic Management of Healthcare Organizations	Case Analyses: Students critically assess multiple cases that have issues related to political, organizational and occupational structures, cultures and norms. Students individually reflect on how the factors and scenarios in the case need to be considered and from which stakeholder perspectives. They are then asked during the class discussion, after they complete their individual assignment, to develop strategies to improve the organization's position.
Implementation and Improvement		
5. Translates visions and strategies into specific goals and plans; analyzes strategic alternatives with respect to the actions and options of other organizations.	PM827: Strategic Management of Healthcare Organizations	SCP Assignment #7 (Final Report): Students prepare a final written report summarizing how they have assessed an organizational strategic issue, identified multiple alternatives, and proposed solutions/recommendations to solve the issue. This assignment includes an understanding of how a company's vision and strategies into specific goals based on the project scope and objectives that were provided by the project sponsoring institution/leader.
6. Critically appraises health care quality data and measurement methods for pursuing quality improvement, identifies strategies for quality improvement and applies structured approaches for implementing change.	PM832: Operations Management in Health Care	Healthcare Data Dashboard: Students work individually on a data project that has them use a publicly-available or private data set, create a dashboard, and use beginner and advanced excel formulas. This assignment addresses the competency because it has students take raw data, determine the optimal way to measure it, assess what the data visualization tells them, and summarize it for implementing change activities or initiatives.
	PM835: Lean Management in Health Care	Group QI Project Presentation: Students work on a "live" project with a health care organization that addresses issues of inefficiency in health care delivery. The students then present a final presentation, and associated report, on the issues and their recommendations for improvement. This assignment involves examining a health care organization's data, performing analysis on it and making recommendations for strategic improvements that are presented to the sponsor.

Competency	Course	Assessment
7. Applies planning/management tools and techniques to achieve successful project completion.	PM827: Strategic Management of Healthcare Organizations	SCP Assignment #6 - Final Presentation: Students present a project from a real-world healthcare organization and analyze a specific strategic question on a number of organizational, financial and delivery system issues. Projects often require assessments from non-US countries. Students use Gantt Charts and other planning approaches such as SWOT analyses to achieve successful project completion.
8. Identifies roles and applications of health information systems in managing health care delivery, financing, and quality assessment.	PM804: Digital Disruption in Health: The Effects of Health Information Technologies on Policies, Delivery, Patient Engagement, and Health Outcomes	Group Project: Students will work in teams to create an innovative mHealth project. This project helps the students understand how HIT systems and other applications are used in care delivery, financing and quality improvement.
Leadership		
9. Knows how to set clear goals and expectations, select and bring together people with the requisite skills and knowledge. Assesses the contributions of others, provides clear developmental feedback and improves one's own performance based on feedback from others.	PM832: Operations Management in Healthcare	Group Project: Students work on a "live" project with a health care organization that addresses issues of inefficiency in health care delivery. At the beginning of the project, they work as a team and with their sponsor to set expectations for the assignment. This assignment requires that the students provide self- and peer-assessments of their teamwork multiple times during the semester. This feedback is then presented back to the class in the aggregate to continuous development.
	PM835: Lean Management in Healthcare	Group QI Project: Students work on a "live" project with a health care organization that addresses issues of inefficiency in health care delivery. At the beginning of the project, they work as a team and with their sponsor to set expectations for the assignment. This assignment requires the students multiple times during the semester to provide self- and peer-assessments of their teamwork. This feedback is then presented back to the class in the aggregate to continuous development.
10. Identifies important interests of multiple parties to understand the dynamics of conflicts in interpersonal, organizational, and	PM735: Healthcare Finance: How Policymakers and Managers Can Use money as a Tool to Improve Healthcare	Exercises 3, 5, 8, 10, 13: Many of these exercises provide context around why conflicts arise and how to remedy them with data and financial analyses. Students use data and specific examples as to how data can be used to resolve conflicts. They also support financial analysis and communicating results to persuade others of a perspective.

Competency	Course	Assessment
political contexts, and develops viable solutions to identified problems.	PM736: Human Resource Management in Public Health	Application in a negotiation role-play simulation: This in-class activity provides students an opportunity to learn by role-playing a number of scenarios where conflicts, politically-sensitive issues, etc. are present. The students then debrief about the role-plays and discuss what was learned in overcoming the issues and coming to an agreement. This involves identifying all perspectives on a particular issue, discussing points of view, and using negotiation to find a solution.
11. Practices structured approaches for transition from the current to the future state in implementing changes in health care policy and management.	PM827: Strategic Management of Healthcare Organizations	Case Analyses: Students critically assess multiple cases on health care delivery and implementation-related issues. They are then asked to identify and map out a future state of the organization and/or discuss what they would do as the organization's leader. The students are required to think through structured approaches in discussing their ideas. The cases provide multiple contexts where organizations were in a current state and were transformed into the future/desired state by leadership. Students take on the perspective of leadership in dissecting the case.
Professionalism		
12. Presents in a clear, logical manner in formal and informal situations, communicates clearly in small and large group meetings, can competently use technology to present ideas and data.	PM832: Operations Management in Health Care	PM832: Group Project Final Presentation and Final Report: Students work on a "live" project with a health care organization that addresses issues of inefficiency in health care delivery. This assignment provides students the opportunity to perform a final presentation that is presented in front of an audience, and a final report that must be high-quality and ready for their sponsor's review. At a minimum, these projects require the use of PowerPoint, Excel, and other technology to complete them. Students also present among each other in informal group meetings.
	PM835: Lean Management in Health Care	Group Project Final Presentation and Final Report: Students work on a "live" project with a health care organization that addresses issues of inefficiency in health care delivery. This assignment provides students the opportunity to perform a final presentation that is presented in front of an audience, and a final report that must be high-quality and ready for their sponsor's review. At a minimum, these projects require the use of PowerPoint, Excel, and other technology to complete them. Students also present among each other in informal group meetings.

Competency	Course	Assessment
13. Writes and communicates in a clear, logical, and grammatical manner in a variety of formats (e-mails, policy briefs, memos, research papers).	PM734: Principles and Practices in Non-Profit Healthcare Accounting	Prepare a written analytic report with recommendations and present findings to the class: Students work in teams to prepare a report examining an accounting topic. This report helps develop their ability to communicate effectively and improves writing skills. Students must write professionally to communicate their ideas and also will need to appropriately use e-mail, memos and other ways summarizing and communicating ideas. Students learn that the final report is a polished product that is written formally, unlike less formal memos or e-mails.
14. Develops strategies for exploring career options and accurately seeing own strengths and development needs; establishes and sustains professional networks; and applies ethical guidelines for sound professional practice.	PM714: Professional Development in Healthcare Management Seminar	Final competency assessment: Students perform a self-assessment of their progress on the HCM competencies at the end of the semester. This assignment addresses the competency because it requires students to identify their strengths and development in areas like professionalism and ethics, networking, writing, communicating, and all other HCM competency areas.

Table D4.1.7. Assessment of competencies for the MPH with a certificate in Health Policy and Law

Competency	Course	Assessment
1. Critically evaluate health policy issues at multiple levels of government (local, state, and national) both domestically and globally, with special attention to political, social, economic, and organizational factors.	PM735: Health Care Finance	Exercises 3, 5, 6, 8, 10, 11, 13: Each of these exercises corresponds and aligns with specific topics relating to the analysis of financing of health services in the U.S. These assignments address student understanding of numerous issues of health services financing and analyze specific scenarios and problems that are seen in many US and other nations. They include basic calculations and case-type problems.
	PM740: Comparative Health Systems and Policy in Industrialized and BRIC Countries	Group presentation: Students participate in small teams that study and compare health policies, health delivery systems progress toward universal health coverage and population health outcomes in two countries. They make a joint presentation, which summarizes where the countries are on the path to UHC and identifies the principal health policy facilitators and barriers to achieving UHC. The presentation assesses achievement of the competency through data and argument presented by the students that relates specific national health policy, economic and political choices with health system structure and outcomes.
	PM833: Health Economics	Class Debates: Students prepare to argue and support a position on one side of a health economics policy

Competency	Course	Assessment
		<p>issue. Debates are conducted in teams of three to four students, each team arguing an assigned side of the case. As a team, students research their side of the issue and prepare to both pose and answer questions. Students are evaluated on their ability to distinguish the economic issues involved, the logic and structure of their case, the quality of their evidence and arguments, and their ability to defeat their opponents' arguments.</p>
	PM834: Health Regulation and Planning	<p>Final Paper: Students identify a problem undermining human health and analyze its causes. They identify policies and programs that attack those causes, assess the efficacy, budgeted costs, political feasibility, and managerial feasibility of five alternative programs.</p>
	PM840: Analysis of Current Health Policy Issues	<p>Final Policy Paper: Students examine alternative solutions to a major health policy problem facing the federal government, a state, locality or an organization (hospital, clinic, managed care organization) and objectively assess them in terms of potential effect, costs, and equity/fairness.</p>
2. Appraise and defend the effectiveness, efficiency and equity of health policies.	PM760: Health Law, Policy, and Policymaking	<p>Testimony: Students are to argue for a specific policy change in a mock legislative hearing. They have five minutes to convince policymakers to care about their issue and to use evidence to support who needs to take action and what they need to do. This assignment challenges students to communicate about research results to a broader audience. Examples of recent stakeholders include a Massachusetts Senator who co-chairs the Massachusetts Legislature's Public Health Committee and a policy advisor to a Governor.</p> <p>Op-ed article: This assignment requires students to communicate evidence for a broader audience outside of academia. Using the topic they are focused on for their final project, they are to argue for a health policy change, including defining a problem and convincingly articulating why this issue should make it onto the crowded policy agenda.</p>
3. Develop policy proposals that recognize legal and political constraints	PM760: Health Law, Policy, and Policymaking	<p>Policy brief: This is the culminating assignment of the semester. Students are to outline a specific legislative or regulatory change. They work with client stakeholders in a state (examples from this year include CO, GA, ID, KS, MA, MS, and OH) on topics currently being considered by policymakers. The assignment requires students to use stakeholder analysis and root cause analysis to articulate a clear problem, identify a specific policy lever, and apply the best available evidence to develop a politically feasible solution.</p>

Competency	Course	Assessment
4. Articulate and justify policy and legal analysis to diverse audiences through written and/or oral deliverables.	LW850: Public Health Law	Research Paper: Each student will select a contemporary problem in public health concerning a known or possible risk to health in which legal methods of prevention, regulation or control might be considered. The paper must include all of the following elements: 1) Definition of the problem and analysis of the public health literature; 2) A recommendation for a specific legal change (regulatory, legislative or judicial) to solve, reduce, or control the problem; 3) The legal and factual arguments justifying the recommendation, including refutation of arguments against the recommendation; 4) An analysis of alternative solutions and why they are not recommended; 5) A proposed method for implementing the recommended change in the real world.
	PM760: Health Law, Policy, and Policymaking	Policy brief: This is the culminating assignment of the semester. Students are to outline a specific legislative or regulatory change. They work with client stakeholders in a state (this year I have projects from CO, GA, ID, KS, MA, MS, and OH) on topics currently being considered by policymakers. The assignment requires students to use stakeholder analysis and root cause analysis to articulate a clear problem, identify a specific policy lever, and apply the best available evidence to develop a politically feasible solution.
	PM740: Comparative Health Systems and Policy in Industrialized and BRIC Countries	Group presentation: Students participate in small teams that study and compare health policies, health delivery systems progress toward universal health coverage and population health outcomes in two countries. They make a joint presentation, which summarizes where the countries are on the path to UHC and identifies the principal health policy facilitators and barriers to achieving UHC. The presentation assesses achievement of the competency through data and argument presented by the students that relates specific national health policy, economic and political choices with health system structure and outcomes.
	PM833: Health Economics	Class Debates: Students prepare to argue and support a position on one side of a health economics policy issue. Debates are conducted in teams of three to four students, each team arguing an assigned side of the case. As a team, students research their side of the issue and prepare to both pose and answer questions. Students are evaluated on their ability to distinguish the economic issues involved, the logic and structure of their case, the quality of their evidence and arguments, and their ability to defeat their opponents' arguments.

Competency	Course	Assessment
	PM834: Health Regulation and Planning	Final Paper: Students identify a problem undermining human health and analyze its causes. They identify policies and programs that attack those causes, assess the efficacy, budgeted costs, political feasibility, and managerial feasibility of five alternative programs.
5. Articulate and justify policy and legal analysis to diverse audiences through written and/or oral deliverables.	PM760: Health Law, Policy, and Policymaking	Testimony: Students are to argue for a specific policy change in a mock legislative hearing. They have five minutes to convince policymakers to care about their issue and to use evidence to support who needs to take action and what they need to do. This assignment challenges students to communicate about research results to a broader audience. When possible, a relevant stakeholder/policymaker is invited to attend to observe and provide feedback on the student's testimony. Examples of recent stakeholders include a Massachusetts Senator who co-chairs the Massachusetts Legislature's Public Health Committee and a policy advisor to a Governor.
		Op-ed article: This assignment requires students to communicate evidence for a broader audience outside of academia. Using the topic they are focused on for their final project, they are to argue for a health policy change, including defining a problem and convincingly articulating why this issue should make it onto the crowded policy agenda.

Table D4.1.8. Assessment of competencies for the MPH with a certificate in Monitoring and Evaluation

Competency	Course	Assessment
1. Design monitoring and evaluation plans for public health programs	GH745: Monitoring and Evaluation of Global Health Programs	Evaluation portfolio: Students work in groups to develop an evaluation portfolio (an evaluation plan) based on a public health program or social program of their choice. The evaluation has several parts including a stakeholder analysis, logic model, evaluation design, mixed-methods, indicators and instruments, analysis plan and dissemination strategy. Students design a realistic evaluation for a public health or social program.

Competency	Course	Assessment
	GH743: Implementing Health Programs in Developing Countries	Client-based scopes of Work: Consulting reports for each implementation area. Students are divided into teams and each are assigned an international health organization as a client. Past examples of clients include PIH-University for Global Health Equity Rwanda and IMA World Health/Tanzania to name a few. The purpose of the student reports is to apply course concepts and tools to address the client's scope of work. Students evaluate a health program, create an implementation plan, analyze the successes and failures of the program and ultimately propose specific, realistic, implementable interventions to address the SOW.
2. Explain the purpose of formative, process and outcome evaluations	GH745: Monitoring and Evaluation of Global Health Programs	Evaluation Portfolio: Students work in groups to develop an evaluation portfolio (an evaluation plan) based on a public health program or social program of their choice. The evaluation has several parts including a stakeholder analysis, logic model, evaluation design, mixed-methods, indicators and instruments, analysis plan and dissemination strategy. As students develop their evaluation plan they must explain the strengths and weaknesses of process evaluation.
	GH743: Implementing Health Programs in Developing Countries	Final project: Students are divided into teams and each are assigned an international health organization as a client. The purpose of the final project is for the students to demonstrate their fulfillment of the client contracts and to present the clients with a program design that will be useful to their organization. In the final project, students must connect the program design to the needs of the organization and to their capacity to fund, implement and evaluate the program. Students must reflect on the most important elements of their client-based work.
3. Differentiate between quantitative and qualitative evaluation methods in relation to their strengths, limitations, appropriate uses with an emphasis on reliability and validity	GH811: Applied Research Methods in Global Health	Group Research Report and Presentation: Students work in teams to answer a study question using both quantitative and qualitative research methods. Each team designs a questionnaire, administers it, and enters and analyzes the data using R. The teams also use some form of qualitative method. These findings and recommendations are then presented to peers and faculty. Students prepare to answer their research question they must evaluate what methods are the most appropriate and why. They must then effectively communicate this reasoning in a written report and when answering questions from their peers and faculty during their presentations.

Competency	Course	Assessment
	GH815: Methods for Impact Evaluation	Discussion questions: To help students prepare for class, they are assigned academic papers to read. For each assigned reading students must prepare responses to the discussion questions. The discussion questions focus on the use of methods in the papers. Students are asked to apply their critical understanding of methodologies and to comment on the strengths and critique the weaknesses of their application in the readings.
4. Apply analytic methods to evaluate the impact and costs of public health programs and policies	GH745: Monitoring and Evaluation of Global Health Programs	Evaluation portfolio (logic model). Students work in groups to develop an evaluation portfolio (an evaluation plan) based on a public health program or social program of their choice. The evaluation has several parts including a stakeholder analysis, logic model, evaluation design, mixed-methods, indicators and instruments, analysis plan and dissemination strategy. This assignment, particularly the logic model, covers the competency because inputs that students develop as part of the logic model include costs of the program/project they are evaluating.
	GH815: Methods for Impact Evaluation	Final proposal and oral presentation: Students are asked to design a 15-page impact evaluation proposal for an intervention or program of their choosing. In the proposal, the student will describe the intervention/program and review the relevant research, develop and describe a study design and data collection methods and present an analysis plan for anticipated main findings.
	GH743: Implementing Health Programs in Developing Countries	Final project: Students are divided into teams and each are assigned an international health organization as a client. The purpose of the final project is for the students to demonstrate their fulfillment of the client contracts and to present the clients with a program design that will be useful to their organization. As part of this project students learn to project expenses, and prevent and deal with the mismanagement of financial resources.
	GH744: Program Design	Program design project (including proposal and presentation): Students are divided into teams and asked to develop a program for a public health intervention. Part of this work requires the accurate analysis and diagnosis of public health problems and the development of evidenced based solutions to address these problems. As students develop their program, they must estimate the cost of the program, create a budget and develop a work plan within this budget.

Competency	Course	Assessment
	GH854: Data to Dashboards: Building Excel Skills to Support Health Program Decisions	Group project: Working in groups, students apply the steps of dashboard design to create their own working Excel dashboard. Students are given a health policy or management problem or need, then set goals for the dashboard; define specifications for features and functionality, create and test the dashboard using formulas, formatting, and other design features, and document their dashboard. Students are able to design, build and use Excel dashboards to perform tasks such as analyzing the costs and utilization or services and to predict how organizational performance will be affected by management and/or policy decisions.
5. Support the use of data from monitoring and evaluation projects in informing evidence based decision making for the development of new programs and continuous quality improvement efforts	GH745: Monitoring and Evaluation of Global Health Programs	Evaluation portfolio (implementation and dissemination plan): Students work in groups to develop an evaluation portfolio (an evaluation plan) based on a public health program or social program of their choice. The evaluation has several parts including a stakeholder analysis, logic model, evaluation design, mixed-methods, indicators and instruments, analysis plan and dissemination strategy. Students must decide how they should disseminate their results and evaluation data to stakeholders and why it matters.
	GH811: Applied Research Methods in Global Health	Group Research Report and Presentation: Students work in teams to answer a study question using both quantitative and qualitative research methods. Each team designs a questionnaire, administers it, and enter and analyze data using R. The teams also use some form of qualitative method. These findings and recommendations are then presented to peers and faculty.
	GH743: Implementing Health Programs in Developing Countries	Client-based scopes of Work: Consulting reports for each implementation area. Students are divided into teams and each are assigned an international health organization as a client. Past examples of clients include PIH-University for Global Health Equity Rwanda and IMA World Health/Tanzania to name a few. The purpose of the student reports is to apply course concepts and tools to address the client's scope of work. Students provide recommendations to their clients on how to best address the issues and challenges described in the scope of work.
	GH804: mHealth	

Competency	Course	Assessment
		Final project consulting report: Students work in teams to design, develop and test a mHealth application based on the real-life project need of an international public health organization. In the final team, deliverable students present a three-part slide deck that includes a needs assessment, a proposed program-level solution and a User Guide for their application. Together, this project and report meet the competency because students develop a novel app to address a public health issue and provide a creative platform for addressing this issue in the client's local context.

Table D4.1.9. Assessment of competencies for the MPH with a certificate in Program Management

Competency	Course	Assessment
1. Supervise and support program staff to ensure activities are aligned with overarching goals and on track to meet specific objectives.	PM832: Operations Management in Healthcare	Real project report (includes Gantt chart): Student teams are tasked with designing a project to improve quality of care in a healthcare setting, e.g. 'improving mobility in elderly patients'. Students focus on a specific problem, and make recommendations to the project sponsor based on findings from process maps and key stakeholder interviews.
	GH743: Implementing Health Programs in Developing Countries	Consulting reports for each implementation area: Students are divided into teams and each are assigned an international health organization as a client. Past examples of clients include Elizabeth Glazer Pediatric Aids Fund Uganda and TAG Development Associates: Myanmar to name a few. The purpose of the student reports is to apply course concepts and tools to address the client's scope of work within areas such as quality improvement, human resources etc. Students' success on this deliverable is measured by how well the content of the deliverable meets the clients goals as articulated by the SOW.
	GH887: Planning and Managing MCH Programs in Developing Countries	Response to training solicitation midterm assessment: Groups of students work together to respond to a request for proposal to develop a maternal and child health intervention. Students must propose an implementable MCH intervention that link together program design, implementation and evaluation skills while successfully addressing the objectives outlined in the RFP.
	MC802: Implementing Community Health Initiatives	Final Consultation Report and Presentation: Teams of students work with site partners in the community. Each team prepares, submits and presents a report to their community partners. Students produce a professional document that community partners use to inform colleagues, grant proposals and constituents.

Competency	Course	Assessment
2. Demonstrate skills in budget management including, projecting costs, providing justifications, managing and containing costs, and implementing transparent financial management systems.	GH773: Financial Management for Health Programs	Full cost analysis case write up (analysis and memo): In pairs, students work together to apply analytical techniques to problems, costs and budgets. Students must link together how cost information is important for health managers and policy makers and how financial information and analyses can impact managerial decision making.
	GH741: Consultation Techniques	Excel budget and individually prepared proposal: Students work independently to submit a budget with notes for their Request for Proposals (RFP) response. In this assignment, students must develop a budget that is competitive, while still ensuring that there is adequate funding to complete the proposed work.
	GH744: Program Design for International Health	Preparation and presentation of a completed proposal for a client: Students are divided into teams and asked to develop a program for a public health intervention. Part of this work requires the accurate analysis and diagnosis of public health problems and the development of evidenced based solutions to address these problems. In the completed proposal, students predict costs of the program, write a budget and develop a work plan that can be executed within the budget.
3. Create monitoring plans to assess leadership and employee accountability, and review plans for management of projects, stakeholders and suppliers.	GH773: Financial Management for Health Programs	Budget development and analysis homework assignments: In these assignments, students apply concepts they learn over the course of three sessions on budgeting. Students link together the skills they learn in budgeting and apply budget-monitoring principles to expenses.
	MC820: Managing Public Health Programs and Projects	Management Plan Memo: Students are divided into groups to act as consultants to a public health organization. In this capacity, students are given a real-world project management challenge faced by their organization and asked to prepare a memorandum. In the memo, students must provide recommendations to the organization for how to address the challenge. These recommendations are grounded in evidence from budgeting exercises, SWOT analyses, stakeholder feedback, and quality improvement concepts.
	GH755: Managing Disasters	Disaster report group project: In pre-assigned groups, students are provided with a list of countries that are in conflict, post-conflict and/or have recently experienced a natural disaster. Students must assess and prioritize needs, and plan the immediate and long-term public health interventions including the provision of shelter, food, water, health care and general protection of affected populations.
4. Analyze program outcomes to identify the needed	PM733: Health Program Management	Negotiation Simulation: The Negotiation workshop begins with a lecture describing the negotiation process. In the exercise, students break out into

Competency	Course	Assessment
<p>changes and ensure that monitoring systems are in place to enable program evaluation.</p>		<p>groups to simulate a negotiation between a physician hospital organization and payer. Students gain experience in evaluating how group processes can enhance individual capacity.</p>
	<p>MC820: Managing Public Health Programs and Projects</p>	<p>Organization/Program Analysis: Students are divided into groups to act as consultants to a public health organization. In this capacity, students are given a real-world project management challenge faced by their organization and asked to prepare a memorandum. Students provide a critical analysis of what their program/organization is and does and provide a critique of the impact that program functions (i.e. organizational structure, internal factors etc.) have on program outcomes (both positive and negative).</p>
	<p>GH744: Program Design for International Health</p>	<p>Preparation and presentation of a completed proposal for a client: Students are divided into teams and asked to develop a program for a public health intervention. Part of this work requires the accurate analysis and diagnosis of public health problems and the development of evidenced based solutions to address these problems. Students design and propose a monitoring and evaluation plan for tracking key program activities, resources and outcomes.</p>
<p>5. Propose solutions to a variety of program challenges related to human resources, information technology, operating procedures, monitoring and evaluation, and quality improvement.</p>	<p>GH743: Implementing Health Programs in Developing Countries</p>	<p>Consulting reports for each program implementation area: Students are divided into teams and each are assigned an international health organization as a client. Past examples of clients include Elizabeth Glazer Pediatric Aids Fund Uganda and TAG Development Associates: Myanmar to name a few. The purpose of the student reports is to apply course concepts and tools to address the client's scope of work. Students evaluate a health program, create an implementation plan, analyze the successes and failures of the program and ultimately propose specific, realistic, implementable interventions to address the SOW.</p>
	<p>PM832: Operations Management in Healthcare</p>	<p>Real project report (includes Gantt chart): Student teams are tasked with designing a project to improve quality of care in a healthcare setting, e.g. 'improving mobility in elderly patients'. As part of this project students develop key recommendations for future actions to enable the achievement of the desired outcomes. The improvement plan portion of the report, meets this competency seeing that students make realistic and actionable recommendations to the project sponsor. These recommendations are grounded in the data.</p>

Competency	Course	Assessment
	GH804: mHealth	Development, documentation and presentation of a functioning mobile health application: Students work in teams to design, develop and test a mHealth application based on the real-life project need of an international public health organization. In the final team deliverable students present a three-part slide deck that includes a needs assessment, a proposed program-level solution and a User Guide for their application. Together, this project and presentation meet the competency because students develop a novel app to address a public health issue and provide a creative solution to a real-world public health project need.
	GH887: Planning and Managing MCH Programs in Developing Countries	Completion and presentation of proposal for an MCH intervention: Groups of students work together to respond to a request for proposal to develop a maternal and child health intervention. As part of this process, they prepare a situation analysis, develop SMART objectives, and create a work plan and a monitoring and evaluation plan. This assignment meets this competency because students weave together these skills to develop, submit and present an MCH intervention.

Table D4.1.10. Assessment of competencies for the MPH with a certificate in Public Health Practice

Competency	Course	Assessment
1. Analyze public health data in pursuit of continuously improving interventions, programs, or policies	BS723: Introduction to Statistical Computing	Final Project: Students perform statistical analysis of public health data using SAS and interpret the results to characterize public health impacts of interventions and programs. Statistical tests include paired and two-sample t-tests; chi-square analysis; one-way ANOVA; correlation and simple regression; simple logistic regression; ANCOVA and multiple linear regression; multivariable logistic regression; nonparametric Wilcoxon Signed Rank and Rank Sum tests.
	BS730: Introduction to R	Final Project: Students apply numerical, tabular, and graphical descriptive techniques to characterize and summarize public health data. They apply the statistical methods for hypothesis testing and regression modeling using R.

Competency	Course	Assessment
	EH730: Methods in Environmental Health Sciences	Environmental Data Collection and Analysis project: This project allows each student to design a soil sampling or water sampling plan, collect samples and analyze the data with the objective of evaluating exposures to arsenic, manganese and lead. They clean the datasets, determine whether the data are normally distributed (and if not, how to use them). They calculate summary statistics, compare the data with relevant standards and guidelines and the primary literature to interpret their findings in order to articulate the characteristics of the chemical hazards to relevant stakeholders.
	EH811: Geographic Information Systems (GIS) in Public Health	Final project: The project assesses the student's ability to identify an environmental or public health problem, to collect data (either in the field or finding datasets), to apply GIS tools to explore solutions or support decisions, and summarize and explain their results in a professional format. Students collect and analyze environmental data and as part of their background presentation articulate the characteristics of major chemical, physical, and biological hazards.
	EP721: Survey Methods for Public Health	Final project: Students design a survey project, with a special emphasis on the development of a questionnaire. The project includes a topic justification, question outline and data collection methodology, and the final complete questionnaire to address a public health issue.
	EP770: Concepts and Methods of Epidemiology	Data Analysis Project: Students analyze publicly available public health data, and synthesize a public health message based on findings.
	GH811: Applied Research Methods in Global Health	Group Research Report and Presentation: Students work in teams to answer a public health research question using both quantitative and qualitative research methods. Each team designs a questionnaire, administers it, and enters and analyzes the data. These findings and recommendations are then presented to peers and faculty.
	SB740: Applied Research Methods for Social Determinants of Health	Collaborative Research Group: Students design and conduct a research project (secondary data analysis) which investigates the relationship between a particular social determinant of health and an outcome using one of several available data sets. Each group produces a professional research poster.
	SB818: Qualitative Research Methods	Qualitative Research Proposal: Students develop a qualitative research proposal on a topic of their choice that is based on preliminary research that students conduct throughout the course. Students have the opportunity to design a study, collect data, perform preliminary analyses of data, and write a conceptual report of the findings.

Competency	Course	Assessment
2. Assess community health problems and make recommendations integrating multiple sources of evidence and community collaboration	MC802: Implementing Community Health Initiative	Final Consultation Report and Presentation: Students work in teams to prepare a written consultation report and present it to community partners, including background and significance of their project, results, conclusions/recommendations, and tools for implementation and sustainability. Students undergo a process of deep understanding of a particular organization's needs and stakeholders, and construct clear, individualized messaging to help them with a challenge.
	PH801: Community-Engaged Research	Final Research Project: Students develop a proposal to conduct a community-engaged study or project on research in response to a community concern or question on a health-related topic. The study or project includes the integration of multiple methods and solicits stakeholder input in formulating recommendations.
	SB820: Assessment and Planning for Health Promotion	Exercises #1-7: Includes a literature review, problem diagram, census-based neighborhood demographic data, health statistics tables, data collection plan, key informant interview(s), and neighborhood observation report/tables/map. Students organize their collective findings into a community health needs assessment report.
	SB821: Intervention Strategies for Health Promotion	Needs Assessment Assignment: Students develop a problem statement that matters for a specific community with references supporting the significance of the problem, data that can be used to explore/support assessment of the problem, and comparison of the programs and strategies used by others to address issues. This assignment integrates multiple sources of data and stakeholder input necessary to the creation of an assessment plan.
3. Apply management tools and techniques to address issues faced by healthcare organizations	GH773: Financial Management for Health Programs	Full cost analysis case write up (analysis and memo): Students apply analytical techniques to problems, costs and budgets. They must link together how cost information is important for health managers and policy makers and how financial information and analyses can impact managerial decision making.
	MC820: Managing Public Health Programs and Projects	Management Plan Memo: Students are divided into groups to act as consultants to a public health organization. In this capacity, students are given a real-world project management challenge faced by their organization and asked to prepare a memorandum. Students must provide recommendations to the organization that are grounded in evidence from budgeting exercises, SWOT analyses, stakeholder feedback, and quality improvement concepts.

Competency	Course	Assessment
	PM827: Strategic Management of Healthcare Organizations	Assignment #6 - Final Presentation: Students present a project from a real-world healthcare organization and analyze a specific strategic question on a number of organizational, financial and delivery system issues. Projects often require assessments from non-US countries. Students use Gantt Charts and other planning approaches such as SWOT analyses to achieve successful project completion.
	PM832: Operations Management in Healthcare	Real project report (includes Gantt chart): Student teams are tasked with designing a project to improve quality of care in a healthcare setting, e.g. 'improving mobility in elderly patients'. As part of this project students develop key recommendations for future actions to enable the achievement of the desired outcomes. Students must make realistic and actionable recommendations to the project sponsor.
	PM835: Lean Management in Healthcare	Group QI Project Presentation: Students work on a "live" project with a health care organization that addresses issues of inefficiency in health care delivery. The students then present a final presentation, and associated report, on the issues and their recommendations for improvement. The project includes the examination of a health care organization's data, performing analysis on it and making recommendations for strategic improvements that are presented to the sponsor.
4. Design and evaluate public health programs	GH744: Program Design	Program design project (including proposal and presentation): Students are divided into teams and asked to develop a program for a public health intervention. Part of this work requires the accurate analysis and diagnosis of public health problems and the development of evidenced based solutions to address these problems.
	GH745: Monitoring and Evaluation of Global Health Programs	Evaluation Portfolio: Students work in groups to develop an evaluation portfolio (an evaluation plan) based on a public health program or social program of their choice. The evaluation has several parts including a stakeholder analysis, logic model, evaluation design, mixed-methods, indicators and instruments, analysis plan and dissemination strategy.
	GH887: Planning and Managing MCH Programs in Developing Countries	Proposal development and presentation: Teams are asked to respond to an RFP, develop a proposal for an MCH intervention, and present their proposal to a grants committee. Students formulate their intervention plan based on SMART objectives, create a detailed work plan, and consider how their intervention can be monitored and evaluated for sustainability.

Competency	Course	Assessment
	SB822: Quantitative Methods for Program Evaluation	Evaluation Proposal: Students develop an evaluation proposal for a public health intervention. They design an evaluation of an intervention, following in-depth lessons on program evaluation, outcome evaluation, and process evaluation, as well as practiced development of logic models.
5. Develop effective leadership and advocacy skills in advancing public health issues and concerns	PM760: Health Law, Policy, and Policymaking	Testimony: Students are to argue for a specific policy change in a mock legislative hearing. They have five minutes to convince policymakers to care about their issue and to use evidence to support who needs to take action and what they need to do. This assignment challenges students to communicate about research results to a broader audience. When possible, a relevant stakeholder/policymaker is invited to attend to observe and provide feedback on the student's testimony. Examples of recent stakeholders include a Massachusetts Senator who co-chairs the Massachusetts Legislature's Public Health Committee and a policy advisor to a Governor.
		Op-ed article: This assignment requires students to communicate evidence for a broader audience outside of academia. Using the topic they are focused on for their final project, they are to argue for a health policy change, including defining a problem and convincingly articulating why this issue should make it onto the crowded policy agenda.
	PM850: Consumer Organizing & Advocacy for Health System Change	Campaign Strategy: Students create a campaign strategy memo that defines an issue and outlines an organizing strategy to address the issue. Shorter assignments as the class progresses will help students formulate and build the final strategy memo. The memo will be written from the perspective of a particular organization or agency involved with the issue (although the strategy will address how to organize in the system and/or community beyond the specific organization).
	SB860: Strategies for Public Health Advocacy	Communications Plan Materials: This includes a framing memo outlining frames being used by proponents and opponents of a public health policy, a press release intended to gain media attention on the public health topic outlined in the framing memo, an op-ed to execute the strategy outlined in their framing memo, and the development of written testimony to be delivered at a mock legislative hearing. Students develop tailored messaging aimed at policymakers and produce written materials tailored to media audiences/the general public.

Table D4.1.11. Assessment of competencies for the DrPH

Competency	Course	Assessment
1. Develop evidence-based strategies for changing health law and policy.	PH851: Community Needs Assessment and Systems Analysis	Political System Analysis and Policy Memo: This assignment, which asks students to foreground community and cultural issues in the measurement of community problems, must include a profile of the politics and health policy system in their catchment area and analyze who or what runs and drives the system formally and informally. This assignment will develop a political and policy profile of the existing leader of the geographic area under study as well as a politically persuasive argument in support of a given policy relevant to subject under study. For the policy memo, students will summarize the public health problem they have chosen in a memo to their selected policymaker. The focus in this politically oriented policy memo concerns how practitioners can most effectively influence the agenda process.
2. Utilize consensus-building, negotiation, and conflict avoidance and resolution techniques.	PH858: Cases in Public Health Management	Written Case Study and Presentation: Students must produce reviews of challenging conflict situations and graded class discussions of the nature of conflict resolution.
3. Apply research from anthropology, psychology, history, demography, sociology, and social epidemiology in national and international contexts.	PH851: Community Needs Assessment and Systems Analysis	Needs Assessment Context Paper: Students will choose a subnational geographic area (a community; region; state; province) and do a needs assessment related to a health outcome in that area. The context paper must: <ul style="list-style-type: none"> ▪ Identify the specific health outcome chosen and why it is significant to that geographic area's health; ▪ Describe the population of interest in the catchment area in terms of relevant health risk factors; ▪ Summarize the literature on what model community programs dealing with the problem of interest should look like; and ▪ Summarize the health resources available in the area.

Competency	Course	Assessment
		<p>Final Needs Assessment: As part of this major assignment, students will incorporate community level data and in-depth interviews into a needs assessment. Students will complete a paper in which they revise their Needs Assessment Context Paper and combine it with the following elements below to produce a clear, integrated summary of the public health problem they are studying in their catchment area. This assessment should:</p> <ul style="list-style-type: none"> ▪ Identify the specific problem and its public health significance; ▪ Describe the population of interest in terms of relevant population health risk factors in the catchment area; ▪ Describe the population of interest in the catchment area in terms of relevant health outcomes, including the distribution of the health outcomes studied in the catchment area at present, over time and in a comparative context; ▪ Briefly summarize the literature on what model community programs dealing with the problem of interest should look like; ▪ Summarize the health system in the area; ▪ Explain how the resources available to address the problem compare to the nature and distribution of the problem as described; and ▪ Provide a model describing the nature of the problem in the community.
<p>4. Organize the work environment with defined lines of responsibility, authority, communication and governance.</p>	<p>PH853: Managing and Implementing Public Health Programs</p>	<p>Intervention Plan: Students must submit a paper that incorporates community and cultural issues in the development of community-based intervention and</p> <ul style="list-style-type: none"> ▪ Briefly outlines the nature and scope of the health outcome of concern; ▪ Identifies the target group (demographics, geographic location) and justifies this choice; ▪ Identifies the health behavior to be changed and justifies this choice; ▪ Identifies the Public Health Agency responsible for the intervention and for which students will develop their communications plan; ▪ Lists key performance objectives and change objectives that are the focus of the intervention; ▪ Outlines the intervention plan; and ▪ Presents supportive material to describe the plan, including a logic model for the community-based organization's work (both current and proposed intervention components) and a program flowchart/timeline/Gantt chart to show the intervention components.

Competency	Course	Assessment
		<p>Multi-Part Communications Plan (that includes organizational and social network analyses): Students will prepare a paper that</p> <ul style="list-style-type: none"> ▪ Presents the communication strategy through completion of a creative brief; ▪ Updates the Intervention Plan logic model to include communication components, as necessary; ▪ Updates the Intervention Plan flowchart/timeline/Gantt chart to show how the proposed communications campaign will unfold over time, coordinated with the intervention; ▪ Presents six media executions to implement the communications plan, including pitch letter with infographic, press release, commentary/editorial for Public Health Post, and three other media executions of the students' choice; and ▪ Briefly describes the media execution, when the media execution is intended to be implemented, who is the target of the media execution, and the purpose the media execution will serve. <p>Adoption, Implementation, and Sustainability Plan (that incorporates implementation strategies, budgeting and financial management, human resources alignment, supplies and facilities management, and information management): Students must prepare a response to a programmatic grant opportunity that</p> <ul style="list-style-type: none"> ▪ Describes a plan to ensure program adoption, implementation, and sustainability; ▪ Provides a budget and budget justification; and ▪ Updates the Intervention Plan flowchart/timeline/Gantt chart to show activities related to adoption, implementation, and sustainability, coordinated with the intervention and communications campaign.
5. Develop financial and business plans for health programs and services.	PH857: Health Economics and Financial Management for Public Health	Major Budget Assignment: This major assignment will be focused on the development of a budget to scale up a major program. For this assignment, students will be given a description of the program and information on where to look for resources.
6. Develop a fully integrated evaluation of a program or policy that incorporates a plan for both outcome and process evaluation.	PH854: Program and Policy Evaluation	<p>Final Policy/Program Evaluation Plan: Students will design an evaluation plan for this major assignment, which must:</p> <ul style="list-style-type: none"> ▪ Provide a short description of the selected public health problem; ▪ Describe the intervention/program/policy to be evaluated; ▪ Articulate key evaluation questions; ▪ Present a clear logic model; and ▪ Articulate methods used to answer evaluation questions.

2) For degrees that allow students to tailor competencies at an individual level in consultation with an advisor, the school must present evidence, including policies and sample documents, that demonstrate that each student and advisor create a matrix for the plan of study. Include a description of policies in the self-study document and at least five sample matrices in the electronic resource file.

Not applicable.

3) Include the most recent syllabus for each course listed in Tables D4.1.1 – D4.1.11. (electronic resource file)

The most recent syllabus for the courses listed above are in the electronic resource files:

- MPH in Community Assessment, Program Design, Implementation, and Evaluation: [ERF D4.3.1](#)
- MPH in Design and Conduct of Public Health Research: [ERF D4.3.2](#)
- MPH in Environmental Hazard Assessment: [ERF D4.3.3](#)
- MPH in Epidemiology and Biostatistics: [ERF D4.3.4](#)
- MPH in Health Communication and Promotion: [ERF D4.3.5](#)
- MPH in Health Policy and Law: [ERF D4.3.6](#)
- MPH in Healthcare Management: [ERF D4.3.7](#)
- MPH in Monitoring and Evaluation: [ERF D4.3.8](#)
- MPH in Program Management: [ERF D4.3.9](#)
- MPH in Public Health Practice: [ERF D4.3.10](#)
- DrPH in Leadership, Management, and Policy: [ERF D4.3.11](#)

4) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)

After completing the required core courses, MPH students pursue a functional certificate specialization that reflects their interests and the interdisciplinary needs of today's public health workforce. Courses within each certificate are intentionally sequenced. While progressing through the certificate requirements, students draw upon knowledge from previous coursework to apply concepts, content, and skills to demonstrate depth and competence in the certificate area. Each student is formally assessed on their ability to perform the competency, ensuring they will be able to apply the knowledge and skills gained in the classroom effectively in a professional setting.

The DrPH program focuses on leadership, management, and policy, through an interdisciplinary skill-based curriculum in analytic methods, management, advocacy, evaluation, financial management and policy analysis. These competencies are in keeping with the spirit of the practice-focused program that SPH founded back in 2004, which aims to prepare students to become advanced generalists who are prepared to meet the everyday challenges in the field that do not automatically sort themselves neatly into specific concentration skill sets. This focus on interdisciplinary approaches to public health practice has set the DrPH Program at SPH apart from doctoral programs at many other institutions and represents one of the program's greatest strengths.

D5. MPH Applied Practice Experiences

MPH students demonstrate competency attainment through applied practice experiences.

Applied practice experiences may be concentrated in time or may be spread throughout a student's enrollment. Opportunities may include the following:

- a Practicum or internship completed during a summer or academic term
- course-based activities (e.g., performing a needed task for a public health or health care organization under the supervision of a faculty member as an individual or group of students)
- activities linked to service learning, as defined by the program, school or university
- co-curricular activities (e.g., service and volunteer opportunities, such as those organized by a student association)
- a blend of for-credit and/or not-for-credit activities

Applied practice experiences may involve governmental, non-governmental, non-profit, industrial and for-profit settings or appropriate university-affiliated settings. To be appropriate for applied practice experience activities, university-affiliated settings must be primarily focused on community engagement, typically with external partners. University health promotion or wellness centers may also be appropriate.

The school identifies sites in a manner that is sensitive to the needs of the agencies or organizations involved. Activities meeting the applied practice experience should be mutually beneficial to both the site and the student.

The applied practice experiences allow each student to demonstrate attainment of at least five competencies, of which at least three must be foundational competencies (as defined in Criterion D2). The competencies need not be identical from student to student, but the applied experiences must be structured to ensure that all students complete experiences addressing at least five competencies, as specified above. The applied experiences may also address additional foundational or concentration-specific competencies, if appropriate.

The school assesses each student's competency attainment in practical and applied settings through a portfolio approach, which demonstrates and allows assessment of competency attainment. It must include at least two products. Examples include written assignments, journal entries, completed tests, projects, videos, multi-media presentations, spreadsheets, websites, posters, photos or other digital artifacts of learning. Materials may be produced and maintained (either by the school or by individual students) in any physical or electronic form chosen by the school.

The materials may originate from multiple experiences (e.g., applied community-based courses and service learning courses throughout the curriculum) or a single, intensive experience (e.g., an internship requiring a significant time commitment with one site). While students may complete experiences as individuals or as groups in a structured experience, each student must present documentation demonstrating individual competency attainment.

Combined degree students have opportunities to integrate and apply their learning from both degree programs through applied practice experiences.

The school structures applied practice experience requirements to support its mission and students' career goals, to the extent possible.

1) Present evidence that the school identifies competencies attained in applied practice experiences for each MPH student. Include a description of policies in the self-study document and at least five sample matrices in the electronic resource file. (self-study document)

As part of the practicum approval process, students complete a Practicum Proposal Form in the school's Practicum Portal online system. Students detail the proposed scope of work and select five MPH competencies in which they will gain proficiency through their practicum; they may select a combination of foundational and certificate competencies, however, at least three must be foundational. Additionally, they are required to complete and submit at least two deliverables (work products) that align with their selected competencies. Practicum staff, the practicum supervisor, and an assigned practicum faculty reviewer each approve every student's Practicum Proposal Form, which includes their selected competencies and proposed deliverables. Practicum Faculty are part of a Practicum Committee, a selected group of 10 faculty members from across academic departments, who review and assess each work product to ensure demonstration of competencies.

During their 240-hour practicum experience, students and Practicum Supervisors rate the student's mastery level with each of their selected competencies on a 1-4 scale (see below table). This is required at both midpoint and final review. The student also submits a detailed description of how they are working toward demonstration of one of their selected competencies through the deliverable at the midpoint. At the conclusion of their practicum, the student's final deliverables, including a brief description of how their deliverables demonstrate mastery of the competencies, are submitted via the Practicum Portal. These products and self-assessments are evaluated by the assigned practicum faculty reviewer.

Five sample practicum matrices are available as [ERF D5.1.1](#).

2) Provide documentation, including syllabi and handbooks, of the official requirements through which students complete the applied practice experience. (electronic resource file)

As with all SPH degree requirements, the practicum requirement is communicated to students in the SPH Bulletin: bu.edu/academics/sph/programs/mp/.

The practicum search, specific requirements, and the registration and approval processes are explained in detail on the practicum website: bu.edu/sph/students/practicum/.

3) Provide samples of practice-related materials for individual students from each concentration. The samples must also include materials from students completing combined degree programs, if applicable. The school must provide samples of complete sets of materials (ie, the documents that demonstrate at least five competencies) from at least five students in the last three years for each concentration. If the school has not produced five students for which complete samples are available, note this and provide all available samples. (electronic resource file)

Samples of practice-related materials for individual students are available in the electronic resource files:

- [ERF D5.3.1](#). Community Assessment, Program Design, Implementation, and Evaluation
- [ERF D5.3.2](#). Design and Conduct of Public Health Research
- [ERF D5.3.3](#). Environmental Hazard Assessment
- [ERF D5.3.4](#). Epidemiology and Biostatistics
- [ERF D5.3.5](#). Health Communication and Promotion
- [ERF D5.3.6](#). Health Policy and Law

- [ERF D5.3.7](#). Healthcare Management
- [ERF D5.3.8](#). Monitoring and Evaluation
- [ERF D5.3.9](#). Program Management

The Executive MPH in Public Health Practice will enroll its first cohort of students in Fall 2018; no practice-related materials will have been completed by the time of the CEPH site visit.

4) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)

The school has a well-organized, structured practicum in which all MPH students demonstrate the application of public health concepts in a planned, supervised, and evaluated practice experience. The school views practica and careers as a continuum where students leverage their practicum searches and experiences to post-MPH employment, and recently broadened the purview of [Career Services and Practicum Office](#) to include the practicum.

Over the last three years, several investments and improvements have been made to increase and diversify practicum opportunities for students, as well as improve students' knowledge of practicum search resources:

- Staff in the practicum office host 20 information sessions each year to describe the process and answer questions and are available any time for drop-in appointments.
- The school hired two Practicum Outreach Specialists to perform proactive outreach to practicum host sites and advise students on practicum search strategies. Each specialist has a portfolio of MPH certificate areas, enabling them to gain specialized knowledge and expertise. This model has yielded an increased number of new practicum hosts on campus and more than 700 practicum postings annually.
- To prepare graduates to enter the increasingly diverse world of public health practice, there has been significant collaboration between administrators and faculty to educate students on public health career paths spanning public, non-profit, and private sectors. This has included creation of career development tools and cultivation of employers to provide students with real-world projects as a part of their classroom learning.
- To streamline and improve the practicum approval process, the school invested in the development of a new practicum portal system. The system captures detailed information on the practice site and the supervisor, a detailed description of the scope of the project, and allows student to choose the most appropriate foundational and certificate competencies for their professional growth. The system also captures work products and facilitates timely review and feedback to ensure that every student is progressing appropriately. This decision was based on extensive feedback from students, practicum supervisors, and practicum faculty approvers.
- The school developed a Professional Practicum Agreement ([ERF D5.4.1](#)) for students to review and sign in the Practicum Portal, which reinforces expectations of professional behavior during the practicum. Addressing the concept of professionalism and teaching students about professional etiquette has been viewed as a priority among many faculty and administrators across the school, and this agreement will be one tool towards achieving this goal.
- To stay abreast of the changing public health landscape, the school consistently gathers industry an employment data to inform decision making and student advising, and to cultivate and expand practicum host sites.

D6. DrPH Applied Practice Experience

Regardless of the amount or level of prior experience, all DrPH students engage in one or more applied practice experiences in which students are responsible for completion of at least one project that is meaningful for an organization and to advanced public health practice.

The work product may be a single project or a set of related projects that demonstrate a depth of competence. It may be completed as a discrete experience (such as a practicum or internship) or integrated into program coursework. In either case, the deliverable must contain a reflective component that includes the student's expression of personal and/or professional reactions to the applied practice experience. This may take the form of a journal or other written product, a professional portfolio or another deliverable as appropriate for the program.

Relevant organizations may include governmental, non-governmental, non-profit, industrial and for-profit settings. The school identifies sites in a manner that is sensitive to the needs of the agencies or organizations involved. Sites should benefit from students' experiences. The intention of this criterion is that the applied practice experience should take place within an organization external to the student's school so that it is not merely an academic exercise, but application of learning to a "real world" setting. The applied practice experience may be completed within a student's own work setting.

DrPH programs ensure that graduates have significant advanced-level practical experiences collaborating with practitioners, allowing opportunities to develop leadership competencies and contribute to the field.

The school identifies a minimum of five foundational and/or concentration-specific competencies (as defined in Criteria D3 and D4) that are reinforced and/or assessed through application. The school or program may either choose at least one competency from the leadership, management and governance domain in Criterion D3 or choose a concentration-specific competency identified in Criterion D4 if it relates to leadership skills. Competencies may differ from student to student.

This criterion does not define a minimum number of hours for the applied practice experience, but it does require the school to identify substantive, quality opportunities that address the identified competencies.

1) Present evidence that the school identifies competencies attained in applied practice experiences for each DrPH student. Include a description of policies in the self-study document and at least five sample matrices in the electronic resource file. (self-study document)

The DrPH public health practicum provides an opportunity for students to apply key elements of policy, management, and program analysis to an advanced-level collaboration with practitioners in an organization or agency engaged in public health practice. The practicum also serves to emphasize the linkages between practice and research, and the value of integrating these through the application of rigorous public health science and management to improve policy and/or practice. Most full-time students undertake their practicum during the summer immediately following their second full semester of coursework, a point at which most students have completed core coursework relevant to practicum fieldwork. Part-time students typically undertake their practicum experiences during or immediately following their second full year in the DrPH Program for the same reason. Regardless of students' full- or part-time status, they must complete PM835 (Lean Management) prior to undertaking the practicum, and they must complete the practicum prior to undertaking their comprehensive exams.

The practicum has a minimum requirement of 200 on-site hours. Upon completion of the practicum, each student demonstrates their competencies through a written report that summarizes what was accomplished during the practicum; a practicum presentation to the DrPH class (lasting approximately

10 – 15 minutes); a written evaluation from their field preceptor; and a lean management organizational report.

The Practicum consists of three principle elements:

1. Implementation of the learning contract with the host organization or institution
2. The application of the principles of lean management to the organization or institution with which they have worked
3. Reflection on general principles of policy, management, and program analysis about the experience

All DrPH practicum experiences follow this same matrix and cover the same competencies, as indicated in Table D6.1.1.

Table D6.1.1. Practice-based products that demonstrate DrPH competency achievement

Specific assignment that demonstrates application or practice	Competency as defined in Criterion D3 or D4
Final Practicum Deliverable/Report (submitted to and graded by Associate Director of DrPH Program)	<p>D3-4: Propose strategies for health improvement and elimination of health inequities by organizing stakeholders, including researchers, practitioners, community leaders and other partners</p> <p>D3-5: Communicate public health science to diverse stakeholders, including individuals at all levels of health literacy, for purposes of influencing behavior and policies</p> <p>D3-6: Integrate knowledge, approaches, methods, values and potential contributions from multiple professions and systems in addressing public health problems</p>
Lean Management Organizational Report (submitted to and graded by Associate Director of DrPH Program)	<p>D3-9: Create organizational change strategies</p> <p>D3-12: Propose human, fiscal and other resources to achieve a strategic goal</p>
Midpoint Review (submitted by student to DrPH Program Manager)	D3-11: Assess one's own strengths and weaknesses in leadership capacities, including cultural proficiency
Field Supervisor Evaluation (submitted by Field Supervisor to DrPH Program Manager)	D3-11: Assess one's own strengths and weaknesses in leadership capacities, including cultural proficiency)
Final Practicum Presentation (presented by student to an audience of peers and graded by the Associate Director of the DrPH Program)	<p>D3-5: Communicate public health science to diverse stakeholders, including individuals at all levels of health literacy, for purposes of influencing behavior and policies</p> <p>D3-11: Assess one's own strengths and weaknesses in leadership capacities, including cultural proficiency</p>

2) Explain, with references to specific deliverables or other requirements, the manner through which the school ensures that the applied practice experience requires students to demonstrate leadership competencies. (self-study document)

Midpoint Review: Students are required to complete a midpoint review with their field supervisor. The first step of the midpoint review is to meet with the field supervisor and use the selected competencies and timeline they developed for their learning contract to guide the discussion. Students should discuss with their field supervisor their progress to date, determine whether or not their future activities and timeline need to be adjusted, and make alterations to their Learning Contract if needed.

For the second part of the midpoint review, students email the DrPH Program Manager and the DrPH Program Assistant Director who assess the review to ensure there is progress toward the selected competencies. The update is expected to include the following:

- written description of student's activities to date (see form)
- progress on accomplishing student competencies
- changes to activities/timeline based on the midpoint review with the field supervisor

Field Supervisor Evaluation: A written evaluation of students' performance and DrPH competencies improvement/mastery from the practicum field supervisor must be submitted to the DrPH Program Manager prior to students' final practicum presentations. The supervisor is asked to complete an evaluation on a number of specific criteria that contribute to leadership, including: cooperation/teamwork, problem solving, professionalism, initiative/motivation, adaptability/flexibility, ability to accept feedback, communication skills, cultural competency, policy development and program planning. The supervisor is also asked to evaluate the student's achievement of competency in the areas identified in the learning contract as well as make recommendations for the student's future professional development.

Final Practicum Presentation: Students deliver a presentation to the Program Director and Assistant Director - who evaluate this exercise - and an audience of their peers on the challenges to leadership in the practicum settings in which they were placed. This presentation focuses on field-based practice lessons learned both about the specific project and about the challenges of higher-level leadership in general.

3) Provide samples of practice-related materials for individual students from each concentration or generalist degree. The school must provide samples of complete sets of materials (ie, the work products/documents that demonstrate at least five competencies) from at least five students in the last three years for each concentration or generalist degree. If the school has not produced five students for which complete samples are available, note this and provide all available samples. (electronic resource file)

Samples of DrPH practice-related materials are available at [ERF D6.3.1](#).

4) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)

The DrPH Program has required a doctoral-level practicum experience since its inception in 2004. In an attempt to strengthen linkages between the practicum and core coursework, in Fall 2013 the program increased the number of minimum hours on-site and required students to incorporate the development of their practicum experience into their PM835 Lean Management coursework and apply principles of lean management to the practicum site. The DrPH program directors provide a strong feedback and

self-assessment structure for evaluating student competency improvement and mastery, and the field supervisor evaluation form was recently revised to improve the linkage to competency development metrics.

D7. MPH Integrative Learning Experience

MPH students complete an integrative learning experience (ILE) that demonstrates synthesis of foundational and concentration competencies. Students in consultation with faculty select foundational and concentration-specific competencies appropriate to the student's educational and professional goals.

The ILE represents a culminating experience and may take many forms, such as a practice-based project, essay-based comprehensive exam, capstone course, integrative seminar, etc. Regardless of form, the student produces a high-quality written product that is appropriate for the student's educational and professional objectives. Written products might include the following: program evaluation report, training manual, policy statement, take-home comprehensive essay exam, legislative testimony with accompanying supporting research, etc. Ideally, the written product is developed and delivered in a manner that is useful to external stakeholders, such as non-profit or governmental organizations.

Professional certification exams (e.g., CPH, CHES/MCHES, REHS, RHIA) may serve as an element of the ILE, but are not in and of themselves sufficient to satisfy this criterion.

The ILE is completed at or near the end of the program of study (e.g., in the final year or term). The experience may be group-based or individual. In group-based experiences, the school documents that the experience provides opportunities for individualized assessment of outcomes.

The school identifies assessment methods that ensure that at least one faculty member reviews each student's performance in the ILE and ensures that the experience addresses the selected foundational and concentration-specific competencies. Faculty assessment may be supplemented with assessments from other qualified individuals (e.g., preceptors).

Combined (dual, joint, concurrent) degree students should have opportunities to incorporate their learning from both degree programs in a unique integrative experience.

1) List the integrative learning experience for each MPH concentration, indicating how the school ensures that the experience demonstrates synthesis of competencies. (self-study document)

Integrative learning experiences (ILE) are tailored to each certificate/concentration's competencies as outlined below. Students completed one ILE as part of their degree program and several certificates offer students options in completing their ILE; these options are delineated by a shaded bar in the tables below and students only complete one option within the certificate.

Tables D7.1.1 – D7.1.10 indicate how competencies are synthesized through the ILE. Numbered competencies represent foundational competencies.

Table D7.1.1. MPH Integrative Learning Experience for Community Assessment, Program Design, Implementation, and Evaluation

Integrative learning experience	How competencies are synthesized	
	Competencies	Synthesis
Community health improvement project proposal	4. Interpret results of data analysis for public health research, policy or practice	The proposals describe planned data-gathering approaches and measures of desired outcomes for evaluating program success, including, outcomes and achievement, community impact, collaboration and innovation, and project sustainability.
	Design a program evaluation, including formative, process and impact evaluation, and be able to articulate a plan for evaluation using a standard logic model	
	Formulate an implementation and sustainability plan designed to engage community members, policy makers, practitioners, funders and researchers	
	8. Apply awareness of cultural values and practices to the design or implementation of public health policies or programs	Students identify potential collaborators, describe how the proposed program involves evidence-based practices or the integration of best practices, and include information on community input related to design, planning, and implementation of the proposed program and/or input into the proposal.
	13. Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes	
	Apply strategies for equitable, collaborative partnerships with communities, based on common recognition of sources of structured social privilege and disadvantage and a shared goal of seeking to expand community assets and power to improve health outcomes	
	9. Design a population-based policy, program, project or intervention	Students design a program and strategies that will be implemented to address the problem, including, a logic model integrating program inputs, outputs, and clearly defined short, intermediate and long term objectives and a narrative description of the logic model.
Design a public health intervention which is supported by public health evidence and responds to priorities identified through a community needs assessment		

Table D7.1.2. MPH Integrative Learning Experience for Design and Conduct of Public Health Research

Integrative learning experience	How competencies are synthesized	
	Competencies	Synthesis
Statistical analysis	3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate	Students completing an analysis of public health data will identify a research question, develop an analytic plan, defend and discuss the analytic plan with their advisor, and carry out the analysis.
	Evaluate relative strengths and weaknesses of various study designs to	

Integrative learning experience	How competencies are synthesized	
	Competencies	Synthesis
	address a specific public health research question	
	4. Interpret results of data analysis for public health research, policy or practice	The project plan includes analyses to generate descriptive statistics on the study sample, descriptive statistics on the dependent and independent variables and the analyses to address the study hypothesis.
	Identify, conduct, and interpret an appropriate statistical analysis for a given public health research question and study design	
Research project proposal	2. Select quantitative and qualitative data collection methods appropriate for a given public health context	Students develop a public health research question, grounded in the public health literature. The research proposal will include a discussion of the strengths and weaknesses of different methodological approaches to the specific research question.
	Evaluate relative strengths and weaknesses of various study designs to address a specific public health research question	
	Identify methodological and practical issues involved with planning and implementing a public health research study	
	4. Interpret results of data analysis for public health research, policy or practice.	In the research proposal, students present a summary of relevant literature, synthesizing results relating to the research question and include a discussion of methodological issues relevant to their proposed study
	Identify methodological and practical issues involved with planning and implementing a public health research study.	

Table D7.1.3. MPH Integrative Learning Experience for Environmental Hazard Assessment

Integrative learning experience	How competencies are synthesized	
	Competencies	Synthesis
Policy memorandum	2. Select quantitative and qualitative data collection methods appropriate for a given public health context	Students acquire and synthesize evidence and data relevant to a current environmental problem or challenge. The data is used to identify and articulate the potential practical solutions and their impacts on public health in the policy memo.
	4. Interpret results of data analysis for public health research, policy or practice	
	Collect and analyze environmental data and articulate the characteristics of major chemical, physical, and biological hazards	
	12. Discuss multiple dimensions of the policy-making process, including the roles of ethics and evidence	Students will identify and document the relevant literature, data in support of the problem, evidence for possible interventions and social

Integrative learning experience	How competencies are synthesized	
	Competencies	Synthesis
	Critically assess articles related to environmental impacts on health, analyzing the strength and validity of the hypothesis, study design and methods, results, conclusions, and public health significance of primary research studies.	inequities that undermine health and create challenges to achieving health equity. These elements will be synthesized in the policy memo.

Table D7.1.4. MPH Integrative Learning Experience for Epidemiology and Biostatistics

Integrative learning experience	How competencies are synthesized	
	Competencies	Synthesis
Data analysis	3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate	Using systematic approaches to identify determinants of health and disease, students access and use data to identify and execute a data analysis plan to address a public health question or issue. Findings are summarized and articulate the validity of inferences including strengths, limitations and implications for public health research and/or action.
	Calculate and apply appropriate epidemiologic and statistical measures to draw valid inferences and summaries from public health data	
	1. Apply epidemiological methods to the breadth of settings and situations in public health practice	Students identify an appropriate research question and approach to critiquing and synthesizing an evidence base. All students must also complete CITI training in "Human Subjects Protection" (Medical Campus Biomedical Researchers or Medical Campus Social-Behavioral Researchers are both acceptable) and "HIPAA" if they have not completed the training in the previous three years
	Analyze key sources of public health data, reflecting comprehension of the basic ethical and legal principles pertaining to the collection, maintenance, analysis, and dissemination of epidemiologic and public health information	
Critical evaluation	4. Interpret results of data analysis for public health research, policy or practice	Students apply epidemiologic and biostatistical methods to address a public health issue and critique a set of published manuscripts.
	Evaluate the strengths and limitations of epidemiologic and statistical reports from public health studies	
	1. Apply epidemiological methods to the breadth of settings and situations in public health practice.	Students identify an appropriate research question and approach to critiquing and synthesizing an

Integrative learning experience	How competencies are synthesized	
	Competencies	Synthesis
	Analyze key sources of public health data, reflecting comprehension of the basic ethical and legal principles pertaining to the collection, maintenance, analysis, and dissemination of epidemiologic and public health information	evidence base. All students must also complete CITI training in “Human Subjects Protection” (Medical Campus Biomedical Researchers or Medical Campus Social-Behavioral Researchers are both acceptable) and “HIPAA” if they have not completed the training in the previous three years

Table D7.1.5. MPH Integrative Learning Experience for Health Communication and Promotion

Integrative learning experience	How competencies are synthesized	
	Competencies	Synthesis
Design a communication strategy for a specific approach (intervention)	2. Select quantitative and qualitative data collection methods appropriate for a given public health context	Students develop a communication strategy that is supported by social and behavioral theories and empirical evidence, assess audience-specific characteristics, assess implementation fidelity and evaluate whether the communication strategy achieves targeted goal.
	11. Select methods to evaluate public health program	
	Design a communication strategy that is theory-driven, science-based, audience-centered, practicable, and evaluable	
	Develop an evaluation plan for a communication strategy	
	18. Select communication strategies for different audiences and sectors	Students assess audience-specific characteristics, including socioeconomic status, health literacy level, and other social and cultural factors as well as political context. Upon completion of the assessment, students select and develop three media executions that advance the communication objective.
	19. Communicate audience-appropriate public health content, both in writing and through oral presentation	
	Create effective materials and messages using strategies and tools tailored to diverse audiences, including those with lower health literacy	

Table D7.1.6. MPH Integrative Learning Experience for Healthcare Management

Integrative learning experience	How competencies are synthesized	
	Competencies	Synthesis
Apply evidence-based management practices to make recommendations to an organization facing a healthcare	16. Apply principles of leadership, governance and management, which include creating a vision, empowering others, fostering collaboration and guiding decision making	Students review relevant current management literature, which will be reported and summarized and be accompanied by specific management recommendations that are derived from the evidence reviewed.
	Demonstrate an understanding of the forces and factors that have shaped and are driving health care systems	

Integrative learning experience	How competencies are synthesized	
	Competencies	Synthesis
delivery problem or question	Analyze strategic alternatives using policy, market, and organizational analyses to develop forward-looking recommendations	
	17. Apply negotiation and mediation skills to address organizational or community challenges	Based on the report, the student will deliver a presentation on the issue, the evidence, and their recommendation to faculty and client managers. Presentations include both visuals and text.
	19. Communicate audience-appropriate public health content, both in writing and through oral presentation	
	Persuasively and clearly communicate in formal and informal situations, using technology to support the presentation of ideas and data	

Table D7.1.7. MPH Integrative Learning Experience for Health Policy and Law

Integrative learning experience	How competencies are synthesized	
	Competencies	Synthesis
Policy memorandum	12. Discuss multiple dimensions of the policy-making process, including the roles of ethics and evidence	Students acquire and synthesize research evidence on a persisting issue through a policy memo that identifies and articulates a specific position.
	Critically evaluate health policy issues at multiple levels of government (local, state, and national) both domestically and globally, with special attention to political, social, economic, and organizational factors	
	Develop creative policy proposals that recognize legal and political constraints	
	19. Communicate audience-appropriate public health content, both in writing and through oral presentation	Based on the policy memo, students present their position at a mock hearing before a state or federal legislative committee.
	Articulate and justify policy and legal analysis to diverse audiences through written and/or oral deliverables	

Table D7.1.8. MPH Integrative Learning Experience for Monitoring and Evaluation

Integrative learning experience	How competencies are synthesized	
	Competencies	Synthesis
Monitoring and evaluation plan	4. Interpret results of data analysis for public health research, policy or practice	Students identify, review, and summarize evidence relevant to the program or policy they are analyzing. Students conduct a process evaluation and impact
	Select methods to evaluate public health programs	

Integrative learning experience	How competencies are synthesized	
	Competencies	Synthesis
	Differentiate between qualitative and quantitative evaluation methods in relation to their strengths, limitations, appropriate uses, with an emphasis on reliability and validity	evaluation. To do so, they must identify qualitative and qualitative indicators to measure questions derived from their logic models. Once students have chosen indicators, they are asked to describe their process/ideal data source(s) for collecting information non each of these indicators.
	Design monitoring and evaluation plans for public health programs	
	Discuss multiple dimensions of the policy-making process	Students conduct a stakeholder analysis to identify relevant stakeholders and develop approaches for engagement. Students also create a logic model to depict what their intervention is aiming to do and how it will achieve the desired outcome.
	Apply analytic methods to evaluate the impacts and costs of public health programs and policies.	
	Design monitoring and evaluation plans for public health programs	

Table D7.1.9. MPH Integrative Learning Experience for Program Management

Integrative learning experience	How competencies are synthesized	
	Competencies	Synthesis
Program analysis brief	4. Interpret results of data analysis for public health research policy or practice	Students create a program brief that summarizes and analyzes evidence relevant to their specific program. The program brief includes a literature review, an analysis of strengths and limitations of the programmatic approach and a review of key priorities for building on strengths.
	Analyze program outcomes to identify needed changes and ensure that monitoring systems are in place to enable program evaluation	
	20. Describe the importance of cultural competence in communicating public health content	The analysis features a program working to reduce the vulnerability and improve the health and wellbeing of populations who frequently experience stigma and discrimination. Students pitch their program analysis to international or national stakeholders in a way that demonstrates an understanding of the challenges faced by the target population and program planners within a specific social and cultural context.
	18. Select communication strategies for different audiences and sectors	
	Propose solutions to a variety of program challenges related to human resources, information technology, operating procedures, monitoring and evaluation, and quality improvement	

Table D7.1.10. MPH Integrative Learning Experience for Public Health Practice

Integrative learning experience	How competencies are synthesized	
	Competencies	Synthesis
Data analysis	2. Select quantitative and qualitative data collection methods appropriate for a given public health context	Using systematic approaches to identify determinants of health and disease, students access and use data to identify and execute a data analysis plan to address a public health question or issue. Findings are summarized and articulate the validity of inferences including strengths, limitations and implications for public health research and/or action.
	3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate	
	Analyze public health data in pursuit of continuously improving interventions, programs, or policies	
Policy Memorandum	12. Discuss multiple dimensions of the policy-making process, including the roles of ethics and evidence	Students synthesize research evidence on a persisting issue through a policy memo that identifies and articulates a specific position. Students will identify and document the relevant literature, data in support of the problem, evidence for possible interventions and social inequities that undermine health and create challenges to achieving health equity. These elements will be synthesized in the policy memo.
	Analyze public health data in pursuit of continuously improving interventions, programs, or policies	
	Develop effective leadership and advocacy skills in advancing public health issues and concerns	
Community health improvement project proposal	4. Interpret results of data analysis for public health research, policy or practice	Students design a program and strategies that will be implemented to address the problem. The proposals describe planned data-gathering approaches and measures of desired outcomes for evaluating program success, including, outcomes and achievement, community impact, collaboration and innovation, and project sustainability.
	9. Design a population-based policy, program, project or intervention	
	Design and evaluate public health programs	

2) Briefly summarize the process, expectations and assessment for each integrative learning experience. (self-study document)

The integrative learning experience (ILE) is an opportunity for students to apply the knowledge and skills gained throughout the MPH program by completing a culminating project. The integrative learning experience is aligned with required functional certificates and incorporates skills and content from context certificates and electives, as appropriate. Each ILE project was designed by the faculty leads of the functional certificates to demonstrate the synthesis of foundational and certificate competencies relevant to that certificate and is assessed by the student's faculty advisor using a specifically designed

rubric. As indicated in D7.4, these rubrics are available as part of each Integrative Learning Experience Guide.

Students register for the integrative learning experience in their last semester and complete one of the following projects, based on their functional certificate selection:

Community Assessment, Program Design, Implementation, and Evaluation: respond to a Request for Proposal (RFP) issued for community health improvement project, based on the priorities identified in a community needs assessment.

Design and Conduct of Public Health Research: (1) create a proposal for a public health research project, including a literature review synthesizing current research relating to the proposal's aims, or (2) conduct a statistical analysis of a pre-selected public health data set.

Environmental Hazard Assessment: write a policy memorandum identifying evidence-based solutions to an environmental health issue for a defined stakeholder group

Epidemiology and Biostatistics: (1) design, conduct and summarize a data analysis of a pre-selected data set, or (2) critique a pre-selected set of published papers in a topic area of interest.

Health Communication and Promotion: collaborate with a public health agency in need of communication strategies to solve a problem and/or support an approach

Health Policy and Law: write a policy memorandum and present findings to relevant stakeholders.

Healthcare Management: use evidence-based management practices to make recommendations to an organization facing a healthcare delivery problem or question.

Monitoring and Evaluation: (1) create a monitoring and evaluation plan based on USAID guidelines, or (2) produce a written impact evaluation analysis.

Program Management: propose specific solutions addressing a variety of program challenges that an organization has identified related to human resources, information technology, supervision, logistics and management, as well as way to improve the program's leadership/governance strategy.

Public Health Practice: (1) design and conduct a data analysis, or (2) write a policy memorandum identifying evidence-based solutions, or (3) respond to a Request for Proposal (RFP) issued for a community health improvement project.

An evaluation of the ILE is underway and will be used for continued quality improvement.

3) Provide documentation, including syllabi and/or handbooks that communicates integrative learning experience policies and procedures to students. (electronic resource file)

An integrative learning experience guide for each functional certificate is available in the electronic resource files:

- **ERF D7.3.1.** ILE Guide for the MPH in Community Assessment, Program Design, Implementation, and Evaluation
- **ERF D7.3.2.** ILE Guide for the MPH in Design and Conduct of Public Health Research
- **ERF D7.3.3.** ILE Guide for the MPH in Environmental Hazard Assessment
- **ERF D7.3.4.** ILE Guide for the MPH in Epidemiology and Biostatistics
- **ERF D7.3.5.** ILE Guide for the MPH in Health Communication and Promotion

- [ERF D7.3.6](#). ILE Guide for the MPH in Health Policy and Law
- [ERF D7.3.7](#). ILE Guide for the MPH in Healthcare Management
- [ERF D7.3.8](#). ILE Guide for the MPH in Monitoring and Evaluation
- [ERF D7.3.9](#). ILE Guide for the MPH in Program Management
- [ERF D7.3.10](#). ILE Guide for the MPH in Public Health Practice

4) Provide documentation, including rubrics or guidelines that explains the methods through which faculty and/or other qualified individuals assess the integrative learning experience with regard to students' demonstration of the selected competencies. (electronic resource file)

Assessment rubrics for each project are part of the integrative learning experience guide, available in the ERFs referenced in section D7.3.

5) Include completed, graded samples of deliverables associated with each integrative learning experience option from different concentrations. The school must provide at least 10% of the number produced in the last three years or five examples, whichever is greater. (electronic resource file)

Graded samples for the Integrative Learning Experience are available in the electronic resource files:

- [ERF D7.5.1](#). Graded ILE samples for the MPH in Community Assessment, Program Design, Implementation, and Evaluation
- [ERF D7.5.2](#). Graded ILE samples for the MPH in Design and Conduct of Public Health Research
- [ERF D7.5.3](#). Graded ILE samples for the MPH in Environmental Hazard Assessment
- [ERF D7.5.4](#). Graded ILE samples for the MPH in Epidemiology and Biostatistics
- [ERF D7.5.5](#). Graded ILE samples for the MPH in Health Communication and Promotion
- [ERF D7.5.6](#). Graded ILE samples for the MPH in Health Policy and Law
- [ERF D7.5.7](#). Graded ILE samples for the MPH in Healthcare Management
- [ERF D7.5.8](#). Graded ILE samples for the MPH in Monitoring and Evaluation
- [ERF D7.5.9](#). Graded ILE samples for the MPH in Program Management

The Executive MPH in Public Health Practice will enroll its first cohort in Fall 2018; no integrated learning experiences will be completed prior to the CEPH site visit.

6) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)

The integrative learning experience not only demonstrates the synthesis of foundational and certificate competencies, but it also produces a tangible work product that may be useful to external stakeholders and potential employers.

One challenge with the current structure of the integrative learning experience is that evaluating these academically rigorous products requires a considerable amount of faculty time and oversight. Currently, this is an additional responsibility for faculty advisors. This arrangement will be reevaluated at the conclusion of fall 2017 to ensure that student and faculty needs are being met.

In order to ensure grading consistency, faculty created dedicated rubrics for each ILE project. The explicit set of criteria outlined in each rubric reflects the importance of the requirement objectives and will help faculty determine the strengths and weaknesses of the ILE project over time.

D8. DrPH Integrative Learning Experience

As part of an integrative learning experience, DrPH candidates generate field-based products consistent with advanced practice designed to influence programs, policies or systems addressing public health. The products demonstrate synthesis of foundational and concentration-specific competencies.

The integrative learning experience is completed at or near the end of the program of study. It may take many forms consistent with advanced, doctoral-level studies and university policies but must require, at a minimum, production of a high-quality written product.

1) List the integrative learning experience for each DrPH concentration or generalist degree, explaining how the school ensures that the experience demonstrates synthesis of competencies. (self-study document)

After successfully completing qualifying exams, every DrPH student completes a doctoral dissertation as their integrative learning experience, as detailed in Table D8.1.1.

Table D8.1.1. DrPH Integrative Learning Experience for Leadership, Management, and Policy

Integrative learning experience components	How competencies are synthesized
Doctoral Dissertation	In the process of designing their dissertation project, DrPH students may draw upon a variety of core DrPH competencies, including qualitative and/or quantitative analysis, evaluation skills, approaches to financial and personnel management and the development of evidence-based policies. Their initial dissertation topic is reviewed by the schoolwide DrPH Committee to ensure it addresses a significant practice challenge in the field and the final product includes a consideration of the transferability of findings to other contexts. DrPH candidates synthesize their expertise into a rigorous, doctoral-level study of a current public health problem within a particular, field-based context that examines relevant data and puts forward feasible and practical recommendations for improving public health practice addressing that problem.

2) Briefly summarize the process, expectations and assessment for each integrative learning experience. (self-study document)

All DrPH students follow the same process in completing their integrative learning experience:

DrPH Dissertation

Through independent work under the guidance of their Doctoral Dissertation Committee, DrPH candidates prepare a dissertation demonstrating their ability synthesize competencies in the analysis and addressing of a complex, practice-based problem in public health. The dissertation must make a substantial contribution to the existing public health practice knowledge base and the format is determined in large part by the nature of the public health problem students plan to address. Dissertations must reflect and synthesize a variety of perspectives needed to analyze and ameliorate major public health problems and include explicit population-based policy and practice implications. DrPH dissertations, as field-based products, must provide support for ongoing public health field practice and at the same time include sufficient context and assessment of transferability that practitioners in other public health settings can gauge the usefulness of the findings for their own work. Appropriate dissertation formats may include:

- applied public health research
- development and analysis of new practice interventions
- design and implementation of public health programs
- program or policy evaluations
- historical program or policy analyses
- case-studies and policy analyses
- substantial legislative proposals

Students may conduct their practice-based dissertation work in national, regional and local health departments, community-based health centers and NGOs in the U.S. and internationally.

DrPH Dissertation Format and Procedures

1. **Responsible Conduct of Research Training:** All SPH doctoral degree candidates must complete all three stages of advanced responsible conduct of research (RCR) training.
2. **Formation of Dissertation Doctoral Committee:** Students identify a dissertation advisor (who is often but not always their academic advisor) and work with that individual to form a Doctoral Dissertation Committee (DDC). Membership shall consist of a minimum of four persons, including three SPH faculty members and one field-based public health professional who works in a leadership capacity in public health practice.
3. **Dissertation Topic Approval:** In conjunction with forming their committee, students identify a public health practice dissertation topic and prepare a dissertation topic approval request (TAR). Students must submit a TAR within six months of successfully passing the comprehensive exams to demonstrate adequate progress in the program. Prior to the full development of a student's dissertation proposal, the DPHC must approve the proposed dissertation topic in order to ensure that it fulfills the general criteria for a practice-oriented dissertation and is consistent with the goals of the DrPH Program. The student's dissertation advisor (First Reader) will participate in the DPHC's approval process to enhance continuity with the subsequent dissertation proposal development.
4. **Dissertation Proposal Development:** Students must submit a completed, formal written proposal and make an oral presentation based on that proposal to their Doctoral Dissertation Committee (DDC). The dissertation committee can determine if it wishes to establish a page limit to the proposal. The proposal should develop in greater depth the themes identified in the topic approval request and include sections on the project's research question and specific aims, relevance to improving the health of the public, literature review, research design and methods, a chapter outline for the full dissertation, references, human subjects research, plans to publish a chapter in a peer-reviewed journal, and considerations regarding the transferability of findings. After the candidate completes an oral defense of the dissertation proposal before the DDC, the DDC must approve the doctoral proposal unanimously prior to the student's commencing her or his dissertation project. The decision and final recommendations for revision of the DDC must be conveyed in a letter from the Dissertation Advisor to the DrPH Program Manager and must be signed by all committee members. This letter must be delivered to the candidate with a copy to the DrPH Program Manager no later than one week following the oral proposal defense.
5. **Dissertation Progress Presentations:** As part of its reaccreditation process, the School of Public Health has set goals for its doctoral programs. One of these is that every student who is in the dissertation stage of their doctoral program will annually present to a DrPH Seminar an oral progress report on the current status of their dissertations.
6. **Dissertation Abstract and Defense:** Students must submit a dissertation abstract of no more than 350 words to both the BUSPH Registrar and the DrPH Program Manager at the time that they apply to graduate. Students must also distribute a near-final draft of the dissertation to their Doctoral Dissertation Committee at least 30 days prior to the defense to allow sufficient time for comments and revision. Upon completion of the written public health practice dissertation, students will make an oral presentation summarizing the key elements of the dissertation and its population-based policy and practice implications to their Doctoral Dissertation Committee. This

requirement, to be conducted in an appropriate public forum, will demonstrate students' ability to present the integration and application of public health practice scholarship and skills required to solve complex public health problems in an appropriate, realistic, and proactive way. Based on the written and oral presentations, the Doctoral Dissertation Committee will formally vote to recommend approval or disapproval of the public health practice dissertation.

DrPH Dissertation Assessment and Approval

The Doctoral Dissertation Committee, in consultation with the DrPH Program Manager, will then make the final determination and certify the student's successful fulfillment of all DrPH program requirements.

3) Provide documentation, including syllabi and/or handbooks that communicates integrative learning experience policies and procedures to students. (electronic resource file)

The DrPH Guidebook is available as [ERF D8.3.1](#).

4) Provide documentation, including rubrics or guidelines that explains the methods through which faculty and/or other qualified individuals assess the integrative learning experience with regard to students' demonstration of the selected competencies. (electronic resource file)

The DrPH Guidebook is available as [ERF D8.3.1](#).

5) Include completed, graded samples of deliverables associated with each integrative learning experience option. The school must provide at least 10% of the number produced in the last three years or five examples, whichever is greater. If the school does not have five recent samples for an option, note this and provide all available samples. (electronic resource file)

DrPH dissertations are available as [ERF D8.5.1](#).

6) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)

The DrPH Program's integrated learning experience is well-structured and monitored by faculty and staff. The emphasis of the DrPH dissertation is on starting with methodological rigor as a foundation and then giving extensive consideration to application of findings in the field. The DrPH Program expects that the finished product will not be a narrow research report of limited interest but, instead, a field-based product that serves the immediate needs of a field organization while also having sufficient context to be applicable to other settings. As a result, DrPH dissertations have made significant impacts in the way public health practitioners and health policymakers seek to improve the health of particular populations.

A major, ongoing challenge is providing sufficient resources to faculty to chair and serve on field practice-based dissertation committees. Students chose field topics of their own interest, and therefore the dissertations are often not linked to a given faculty member's research agenda or funding. Since there is no designated amount of coverage for serving on a dissertation committee beyond a general service designation, faculty recruitment to serve on these committees can be a challenge. The school is considering how best to structure support for faculty serving on these dissertations in a school-wide program.

D9. Public Health Bachelor's Degree General Curriculum

The overall undergraduate curriculum (eg, general education, liberal learning, essential knowledge and competencies, etc.) introduces students to the following domains. The curriculum addresses these domains through any combination of learning experiences throughout the undergraduate curriculum, including general education courses defined by the institution as well as concentration and major requirements or electives.

- the foundations of scientific knowledge, including the biological and life sciences and the concepts of health and disease
- the foundations of social and behavioral sciences
- basic statistics
- the humanities/fine arts

Required documentation:

- 1) List the coursework required for the school or program's public health bachelor's degree. (self-study document)
 - 2) Provide official documentation of the required components and total length of the degree, in the form of an institutional catalog or online resource. Provide hyperlinks to documents if they are available online, or include copies of any documents that are not available online. (electronic resource file)
 - 3) Provide a matrix, in the format of Template D9-1 that indicates the courses/experience that ensure that students are introduced to each of the domains indicated. Template D9-1 requires the school or program to identify the experiences that introduce each domain. (self-study document)
 - 4) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area.
(self-study document)
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This criterion is not applicable.

D10. Public Health Bachelor's Degree Foundational Domains

The requirements for the public health major or concentration provide instruction in the following domains. The curriculum addresses these domains through any combination of learning experiences throughout the requirements for the major or concentration coursework (ie, the school or program may identify multiple learning experiences that address a domain— the domains listed below do not each require a single designated course).

- the history and philosophy of public health as well as its core values, concepts and functions across the globe and in society
- the basic concepts, methods and tools of public health data collection, use and analysis and why evidence-based approaches are an essential part of public health practice
- the concepts of population health, and the basic processes, approaches and interventions that identify and address the major health-related needs and concerns of populations
- the underlying science of human health and disease, including opportunities for promoting and protecting health across the life course
- the socioeconomic, behavioral, biological, environmental and other factors that impact human health and contribute to health disparities
- the fundamental concepts and features of project implementation, including planning, assessment and evaluation
- the fundamental characteristics and organizational structures of the US health system as well as the differences between systems in other countries
- basic concepts of legal, ethical, economic and regulatory dimensions of health care and public health policy and the roles, influences and responsibilities of the different agencies and branches of government
- basic concepts of public health-specific communication, including technical and professional writing and the use of mass media and electronic technology

If the school or program intends to prepare students for a specific credential, the curriculum must also address the areas of instruction required for credential eligibility (eg, CHES).

Required documentation:

- 1) Provide a matrix, in the format of Template D10-1 that indicates the courses/experience that ensure that students are exposed to each of the domains indicated. Template D10-1 requires the school or program to identify the learning experiences that introduce and reinforce each domain. (self-study document)
- 2) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area.

(self-study document)

This criterion is not applicable.

D11. Public Health Bachelor's Degree Foundational Competencies

Students must demonstrate the following competencies:

- the ability to communicate public health information, in both oral and written forms, through a variety of media and to diverse audiences
- the ability to locate, use, evaluate and synthesize public health information

Required documentation:

- 1) Provide a matrix, in the format of Template D11-1 that indicates the experience that ensure that students demonstrate competencies in each of the domains indicated. Template D11-1 requires the school or program to identify the experiences that introduce and reinforce each domain.
(self-study document)
- 2) If applicable, include examples of student work indicated in Template D11-1.
- 3) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area.

(self-study document)

This criterion is not applicable.

D12. Public Health Bachelor's Degree Cumulative and Experiential Activities

Students have opportunities to integrate, synthesize and apply knowledge through cumulative and experiential activities. All students complete a cumulative, integrative and scholarly or applied experience or inquiry project that serves as a capstone to the education experience. These experiences may include, but are not limited to, internships, service-learning projects, senior seminars, portfolio projects, research papers or honors theses. Schools and programs encourage exposure to local-level public health professionals and/or agencies that engage in public health practice.

Required documentation:

- 1) Provide a matrix, in the format of Template D12-1, that identifies the cumulative and experiential activities through which students have the opportunity to integrate, synthesize and apply knowledge as indicated. (self-study document)
 - 2) Include examples of student work that relate to the cumulative and experiential activities. (electronic resource file)
 - 3) Briefly describe the means through which the school or program implements the cumulative experience and field exposure requirements. (self-study document)
 - 4) Include handbooks, websites, forms and other documentation relating to the cumulative experience and field exposure. Provide hyperlinks to documents if they are available online, or include electronic copies of any documents that are not available online. (electronic resource file)
-

This criterion is not applicable.

D13. Public Health Bachelor's Degree Cross-Cutting Concepts and Experiences

The overall undergraduate curriculum and public health major curriculum expose students to concepts and experiences necessary for success in the workplace, further education and lifelong learning. Students are exposed to these concepts through any combination of learning experiences and co-curricular experiences. These concepts include the following:

- advocacy for protection and promotion of the public's health at all levels of society
- community dynamics
- critical thinking and creativity
- cultural contexts in which public health professionals work
- ethical decision making as related to self and society • independent work and a personal work ethic
- networking
- organizational dynamics
- professionalism
- research methods
- systems thinking
- teamwork and leadership

Required documentation:

- 1) Briefly describe, in the format of Template D13-1, of the manner in which the curriculum and cocurricular experiences expose students to the concepts identified. (self-study document)
- 2) Provide syllabi for all required coursework for the major and/or courses that relate to the domains listed above. Syllabi should be provided as individual files in the electronic resource file and should reflect the current semester or most recent offering of the course. (electronic resource file)
- 3) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area.

(self-study document)

This criterion is not applicable.

D14. MPH Program Length

An MPH degree requires at least 42 semester-credits, 56 quarter-credits or the equivalent for completion.

Schools use university definitions for credit hours.

1) Provide information about the minimum credit-hour requirements for all MPH degree options. If the university uses a unit of academic credit or an academic term different from the standard semester or quarter, explain the difference and present an equivalency in table or narrative form. (self-study document)

The minimum credit requirement for the standard BU MPH and dual degree programs is 48 credits. The minimum credit requirement for the executive MPH is 42 credits.

Table D14.1.1. Minimum Credit Requirement

Program	Minimum Credit Requirement
MPH	48
BA/MPH	48
BS/MPH	48
MS/MPH	48
JD/MPH	48
MSW/MPH	48
MBA/MPH	48
MD/MPH	48
Executive MPH	42

2) Define a credit with regard to classroom/contact hours. (self-study document)

SPH follows the Boston University contact hour policy. For courses offered during a typical semester, 1 credit is equivalent to 3 hours of student effort per week, where "student effort" takes into account work both in and out of the classroom.

D15. DrPH Program Length

The DrPH degree requires a minimum of 36 semester-credits of post-master's coursework or its equivalent. Credits associated with the integrative learning experience and, if applicable, a residency, internship or other applied practice experience conducted outside of a didactic course, do not count toward this requirement. The minimum credit requirement also does not count MPH-level prerequisite courses or their equivalent.

Schools use university definitions for credit hours.

1) Provide information about the minimum credit-hour requirements for all DrPH degree options. If the university uses a unit of academic credit or an academic term different from the standard semester or quarter, explain the difference and present an equivalency in table or narrative form. (self-study document)

The minimum credit requirement for the DrPH is 48 credits.

2) Define a credit with regard to classroom/contact hours. (self-study document)

SPH follows the Boston University contact hour policy. For courses offered during a typical semester, 1 credit is equivalent to 3 hours of student effort per week, where "student effort" takes into account work both in and out of the classroom.

D16. Bachelor's Degree Program Length

A public health bachelor's degree requires completion of a total number of credit units commensurate with other similar degree programs in the university.

Schools and programs use university definitions for credit hours.

Bachelor's degree programs have publicly available policies and procedures for review of coursework taken at other institutions, including community colleges. These may be incorporated into articulation agreements.

Required documentation:

- 1) Provide information about the minimum credit-hour requirements for all public health bachelor's degree options. If the university uses a unit of academic credit or an academic term different from the standard semester or quarter, explain the difference and present an equivalency in table or narrative form. (self-study document)
- 2) Define a credit with regard to classroom/contact hours. (self-study document)
- 3) Describe policies and procedures for acceptance of coursework completed at other institutions, including community colleges. (self-study document)
- 4) If applicable, provide articulation agreements with community colleges that address acceptance of coursework. (electronic resource file)
- 5) Provide information about the minimum credit-hour requirements for coursework for the major in at least two similar bachelor's degree programs in the home institution.

(self-study document)

This criterion is not applicable.

D17. Academic Public Health Master's Degrees

Students enrolled in the unit of accreditation's academic public health master's degrees (eg, MS in biostatistics) complete a curriculum that is based on defined competencies; produce an appropriately rigorous discovery-based paper or project at or near the end of the program of study; and have the opportunity to engage in research at a level appropriate to the degree program's objectives.

These students also complete coursework and other experiences, outside of the major paper or project, that substantively address scientific and analytic approaches to discovery and translation of public health knowledge in the context of a population health framework.

Finally, students complete coursework that provides instruction in the foundational public health knowledge at an appropriate level of complexity. This instruction may be delivered through online, in-person or blended methodologies, but it must meet the following requirements while covering the defined content areas.

- The instruction includes assessment opportunities, appropriate to the degree level, that allow faculty to assess students' attainment of the introductory public health learning objectives.
- The instruction and assessment of students' foundational public health knowledge are equivalent in depth to the instruction and assessment that would typically be associated with a three-semester-credit class, regardless of the number of credits awarded for the experience or the mode of delivery.

The school identifies at least one required assessment activity for each of the following foundational public health learning objectives.

Profession & Science of Public Health

1. Explain public health history, philosophy and values
2. Identify the core functions of public health and the 10 Essential Services
3. Explain the role of quantitative and qualitative methods and sciences in describing and assessing a population's health
4. List major causes and trends of morbidity and mortality in the US or other community relevant to the school
5. Discuss the science of primary, secondary and tertiary prevention in population health, including health promotion, screening, etc.
6. Explain the critical importance of evidence in advancing public health knowledge

Factors Related to Human Health

7. Explain effects of environmental factors on a population's health
8. Explain biological and genetic factors that affect a population's health
9. Explain behavioral and psychological factors that affect a population's health
10. Explain the social, political and economic determinants of health and how they contribute to population health and health inequities
11. Explain how globalization affects global burdens of disease
12. Explain an ecological perspective on the connections among human health, animal health and ecosystem health (e.g., One Health)

1) List the curricular requirements for each relevant degree in the unit of accreditation. (self-study document)

The curricular requirements for the Master of Arts and Master of Science programs are outlined in the University Bulletin and available at the following links:

- [Master of Arts in Biostatistics](#)
- [Master of Science in Applied Biostatistics](#)
- [Master of Science in Environmental Health Data Analytics](#)
- [Master of Science in Epidemiology](#)
- [Master of Science in Health Services and Systems Research](#)
- [Master of Science in Public Health Nutrition](#)

2) Provide a matrix that indicates the required assessment opportunities for each of the defined foundational public health learning objectives (1-12). Typically, the school present a separate matrix for each degree program, but matrices may be combined if requirements are identical. (self-study document)

All MS and MA students demonstrate mastery of the public health foundational learning objectives through the completion of PH700, a course comprised of three online modules:

- I. Basics and Principles
 1. The history of public Health
 2. What is public health? (includes core functions; ten essential services; primary, secondary, and tertiary prevention; and philosophy and values)
 3. Ethics in public health
 4. The importance of evidence in public health (surveillance, descriptive and analytical epidemiology; quantitative research)
 5. Qualitative Research in Public Health
 6. Trends in mortality, morbidity, and preventive measures in the United States
- II. Biological Foundations for Public Health
 1. Some basic cell biology (the molecules of life; basic cell structure and function)
 2. DNA, heredity, and drug resistance
 3. Infectious agents
 4. Respiratory health (basic physiology plus asthma, effects of smoking, emphysema, air pollution, greenhouse gases)
 5. Heart health (atherosclerotic heart disease)
 6. Cancer
- III. Factors Related to Human Health
 1. Effects of environmental factors on a population's health
 2. Behavioral and psychological factors that affect a population's health
 3. Social, political and economic determinants of health and how they contribute to population health and health inequities
 4. How globalization affects global burdens of disease
 5. An ecological perspective on the connections among human health, animal health and ecosystem health (One Health)

Table D17.2.1. Foundational public health learning objective coverage for the academic public health master's degrees

Content	Course number(s) or other educational requirements	Specific component (reading, lecture, discussion)
1. Explain public health history, philosophy and values	PH700: Foundations of Public Health	Online assessments on each topic and a final examination
2. Identify the core functions of public health and the 10 Essential Services*		
3. Explain the role of quantitative and qualitative methods and sciences in describing and assessing a population's health		
4. List major causes and trends of morbidity and mortality in the US or other community relevant to the school		
5. Discuss the science of primary, secondary and tertiary prevention in population health, including health promotion, screening, etc.		
6. Explain the critical importance of evidence in advancing public health knowledge		
7. Explain effects of environmental factors on a population's health		
8. Explain biological and genetic factors that affect a population's health		
9. Explain behavioral and psychological factors that affect a population's health		
10. Explain the social, political and economic determinants of health and how they contribute to population health and health inequities		
11. Explain how globalization affects global burdens of disease		
12. Explain an ecological perspective on the connections among human health, animal health and ecosystem health (e.g., One Health)		

3) Provide a matrix that lists competencies for each relevant degree and concentration. The matrix indicates at least one assessment activity for each of the listed competencies. Typically, the school will present a separate matrix for each concentration. (self-study document)

Competency maps for the academic masters degrees are available as Tables D17.3.1. – D17.3.6.

Table D17.3.1. Assessment of competencies for the MA in Biostatistics

Competency	Course	Assessment
1. Apply epidemiologic and statistical methods to the measurement and study of population health.	CAS MA575: Linear Models	Final exam: Comprehensive exam assessing mastery of the theory of simple and multiple linear regression; regression with polynomials or factors; analysis of variance; weighted and generalized least squares; transformations; regression diagnostics; variable selection; and extensions of linear models.
	SPH EP770: Concepts and Methods in Epidemiology	Data Analysis Project: Integrative out-of-class project that integrates concepts of data analysis by defining an addressable research question, utilizing directed acyclic graphs (DAGs) for confounder selection, choosing appropriate exposure and outcome measurements, calculating crude and adjusted measures of association, presenting results, and interpreting findings with respect to strengths, limitations, and biases.
	SPH BS805: Intermediate Statistical Computing and Applied Regression Analysis	Course Project: Integrative multi-week, take home project that assesses the mastery of preparing data for analysis that includes the creation of subsets, construction of new variables, use of arrays, possible conversion between univariate and multivariate data structures., and the merging of data sets. It also requires the ability to identify the assumptions, limitations, and results of multi-factorial ANOVA, ANCOVA, analysis of repeated Gaussian measures, and multiple linear regression analysis, and to report complete results using tables and text in paragraph form.
	SPH BS852: Statistical Methods for Epidemiology	Final exam: In class comprehensive exam assessing the mastery of concepts in study design and data analysis for confounding, evaluation of statistical model fit, accounting for missing data in analysis, and mediation analysis.
2. Understand and use concepts in probability theory, random variation and commonly used statistical distributions and mathematical statistics at the Master's level.	CAS/MET MA581: Probability	Final Exam: In class comprehensive exam covering foundations of probability, combinatorics, conditioning and independence, Bayes's rules, random variables and distributions, random vectors and joint marginal distributions, independence, continuous random vectors, expectations, variance, loss functions.
	CAS/MET MA582: Mathematical Statistics	Final Exam: In class comprehensive exam covering Normal and other distributions. Moment-generating functions. Interval estimation. Point estimation including sufficiency, Rao-Blackwell theorem, completeness, uniqueness, Rao-Cramer inequality, and maximum likelihood estimation, with potential additional areas that may include tests of hypothesis, uniformly most powerful tests, uniformly most powerful unbiased tests, likelihood ratio test, chi-squared test, comparison of means and variances, ANOVA, regression, and some nonparametric tests, order statistics and their asymptotics.
3. Perform intermediate or higher level statistical	CAS MA575: Linear Models	Final exam: Comprehensive exam assessing mastery of the theory of simple and multiple linear regression; regression with polynomials or factors; analysis of variance; weighted and generalized least squares;

Competency	Course	Assessment
<p>analyses (estimation and inference) including ANOVA, linear and logistic regression analysis, and survival analysis.</p>		transformations; regression diagnostics; variable selection; and extensions of linear models.
	<p>SPH BS805: Intermediate Statistical Computing and Applied Regression Analysis</p>	<p>Course project: Integrative multi-week, take home project that assesses the mastery of preparing data for analysis that includes the creation of subsets, construction of new variables, use of arrays, possible conversion between univariate and multivariate data structures., and the merging of data sets. It also requires the ability to identify the assumptions, limitations, and results of multi-factorial ANOVA, ANCOVA, analysis of repeated Gaussian measures, and multiple linear regression analysis, and to report complete results using tables and text in paragraph form.</p>
	<p>SPH BS852: Statistical Methods for Epidemiology</p>	<p>Final exam: In class comprehensive exam assessing the mastery of concepts in study design and data analysis for confounding, evaluation of statistical model fit, accounting for missing data in analysis, and mediation analysis.</p>
<p>4. Develop competency in statistical programming for both managing and analyzing data.</p>	<p>CAS MA575: Linear Models</p>	<p>Final exam: Comprehensive exam assessing mastery of the theory of simple and multiple linear regression; regression with polynomials or factors; analysis of variance; weighted and generalized least squares; transformations; regression diagnostics; variable selection; and extensions of linear models.</p>
	<p>SPH BS805: Intermediate Statistical Computing and Applied Regression Analysis</p>	<p>Course project: Integrative multi-week, take home project that assesses the mastery of preparing data for analysis that includes the creation of subsets, construction of new variables, use of arrays, possible conversion between univariate and multivariate data structures., and the merging of data sets. It also requires the ability to identify the assumptions, limitations, and results of multi-factorial ANOVA, ANCOVA, analysis of repeated Gaussian measures, and multiple linear regression analysis, and to report complete results using tables and text in paragraph form.</p>
	<p>SPH BS852: Statistical Methods for Epidemiology</p>	<p>Final exam: In class comprehensive exam assessing the mastery of concepts in study design and data analysis for confounding, evaluation of statistical model fit, accounting for missing data in analysis, and mediation analysis.</p>

Table D17.3.2. Assessment of competencies for the MS in Applied Biostatistics

Competency	Course	Assessment
1. Apply the statistical methods commonly used in biomedical research, including analysis of variance	BS800: Accelerated Statistics Training (AST) for Biostatisticians	Homeworks 12 and 13: These assignments involve analysis of real data sets in which the students use analysis of variance (ANOVA) to compare means of 2 or more populations. In both homeworks, students identify the situations in which the ANOVA method is or is not appropriate, apply the method, when appropriate, using R and SAS and provide detailed interpretation of computer output.
	BS806: Multivariable Analysis for Biostatisticians	Homework 1: This assignments assesses student's understanding of the ANOVA method through a combination of theoretical and applied questions. The applied questions will require analysis of real data and interpretation of results.
	BS849: Bayesian Modeling	Homework 3: This consists of the analysis of a data set in which students need to use Bayesian analysis of variance to compare means of different populations.
2. Apply the statistical methods commonly used in biomedical research, including linear regression, logistic regression, and log-linear models	BS800: Accelerated Statistics Training (AST) for Biostatisticians	Computer lab 15: The lab uses an analysis of a real data set to assess whether students can analyze residuals from the fitting of a simple linear regression model and identify problems with model fit. Students need to summarize the results of this analysis in a two page report that will be graded.
	BS806: Multivariable Analysis for Biostatisticians	Final Project: A data analysis project is distributed in week 8, and students work in groups to analyze the data using multiple linear regression. Students present the results of this analysis in class, and also write a short report that describes methods, results and interpretation. Both the oral presentation and the written reports are assessed.
	BS852: Statistical Methods in Epidemiology	Homework 5: This includes an analysis of a data set in which the students are expected to use logistic regression to estimate the odds of a dichotomous outcome as a function of a risk factors, adjusting for confounders. The homework requires to students to use SAS or R to fit the logistic regression model and conduct model selection.
	BS853: Generalized Linear Models	Final Project: A data analysis project is distributed in week 8, and students work in groups to analyze the data using generalized linear models. Students present the results of this analysis in class, and also write a short report that describes methods, results and interpretation. Both the oral presentation and the written reports are assessed.
	BS849: Bayesian Modeling	Homework 5: This includes various count datasets that students need to analyze using Bayesian logistic and log-linear models. The homework will assess the student's competency in using Makov Chain Monte Carlo to generate estimates of the regression coefficients and conduct Bayesian model selection.

Competency	Course	Assessment
3. Apply the statistical methods commonly used in biomedical research, including Survival Analysis	BS852: Statistical Methods in Epidemiology	Final Project: A data analysis project is distributed in week 8 and students analyze the data using survival analysis. Students write a short report that describes methods, results and interpretation.
	BS853: Generalized Linear Models	Homework 10: This assignment includes the analysis of a time to event data in which, in addition to non-parametric and semi-parametric methods, students are expected to use fully parametric survival regression models.
4. Apply the statistical methods commonly used in biomedical research, including mixed models and analysis of correlated data	BS728: Public Health Surveillance	Homework 4: This assesses competency in using regression models for time-series data, with longitudinal correlation.
	BS857: Analysis of Correlated Data	Final Project: A final data analysis group project is due by week 14 where students choose a dataset with correlated data, apply appropriate techniques and present methods, results and interpretation.
5. Apply the statistical methods commonly used in biomedical research, including Bayesian Analysis	BS849: Bayesian Modeling	Homeworks 1-6: Students competency in using Bayesian analysis for various types of data is assessed through 6 homeworks that include Bayesian analysis of contingency tables (Homework 1), Bayesian linear regression models (Homeworks 2 and 3), Bayesian hierarchical models (homeworks 4, 5, and 6), and Bayesian latent variable models (homework 6).
		Final Project: Students complete a final project that includes the analysis of a large data set. Students must prepare a written report that includes description of methods and results and interpretation of the findings.
6. Apply the statistical methods commonly used in biomedical research, including statistical computing	BS803: Statistical Programming for Biostatisticians	Homeworks 1 and 2: Students generate descriptive statistics, perform bivariate tests and conduct and interpret linear and logistic regression analysis using SAS.
		Homework 4: Students develop and submit code to produce descriptive statistics, linear and logistic regression analysis using a cluster computing system.
		Homework 5: Students generate descriptive statistics, perform bivariate tests and conduct linear and logistic regression analysis using Python.
		Homework 7: Students prepare data for statistical analysis using SQL

Competency	Course	Assessment
7. Apply the statistical methods commonly used in biomedical research, including analysis of observational studies	BS800: Accelerated Statistics Training (AST) for Biostatisticians	Homework 11: This assignments includes analysis of real data sets to assess whether students can specify the correct methods of analysis of categorical variables in different study designs, whether they can estimate appropriate measures of associations and test their significance; whether they can estimate association between a binary outcome and a binary risk factor adjusting for confounding using Mantel Haenszel method for stratified analysis. The homework will require students to interpret the output of SAS PROC Freq, and of specific R functions for analysis of categorical data, and to report the results of the analysis.
8. Apply basic principles and methods to design, plan, conduct, and interpret biomedical studies in clinical trials	BS851: Applied Statistics in Clinical Trials I	Homework 3-9: The analysis of randomized trials with continuous outcome is assessed in homework 3, students competency on analysis of randomized trials with dichotomous outcome is assessed in homework 4, assessment of confounding is tested in homework 5, and competency in study design and sample size calculation is assessed in homework 6. Homeworks 7, 8 & 9 assess competency in designing non-inferiority trials, interim analysis and time to event analysis.
9. Apply basic principles and methods to design, plan, conduct, and interpret biomedical studies in observational studies	BS852: Statistical Methods in Epidemiology	Final Data Analysis Group Project: A final data analysis group project is due by week 14 where students need to choose a dataset with correlated data, apply appropriate techniques and present methods, results and interpretation.
	BS857: Analysis of Correlated Data	Data Analysis Project: A data analysis project is distributed in week 8 and students choose the method of analysis that is appropriate, given the study design and characteristics of the data. Students write a short report that describes methods, results and interpretation.
10. Apply basic principles and methods to design, plan, conduct, and interpret biomedical studies in big genomic and genetics data	BS858: Statistical Genetics I	Homeworks 1-7: This course covers a variety of statistical applications to human genetic data, including collection and data management of genetic and family history information, and statistical techniques used to identify genes contributing to disease and quantitative traits in humans. General topics include basic population genetics, linkage analysis and genetic association analyses. Students are assessed through homeworks that require analysis of real data set to estimate the genetic component of a trait (homeworks 1, 2, and 3), analysis of pedigrees (homework 4), genetic association analysis (homeworks 5-7) and advanced topics in genetics.
	BS831: Genomics Data Mining and Statistics	Final project: The final project requires students to analyze real gene expression data sets using the statistical language R and associated packages (including Bioconductor), and in the use of R markdown (and/or electronic notebooks) for the redaction of analysis reports.

Competency	Course	Assessment
11. Provide effective biostatistical advice as a member of a team with strong consultancy skills	BS806: Multivariable Analysis for Biostatisticians	Group project: Each student's ability to work in a team is assessed through a group project that is distributed in week 8. Students present the results of this analysis in class, and also write a short report that describes methods, results and interpretation.
	BS853: Generalized Linear Models	Group project: Each student's ability to work in a team is assessed through a group project that is distributed in week 8. Students present the results of this analysis in class, and also write a short report that describes methods, results and interpretation.
	BS857: Analysis of Correlated Data	Group project: Each student's ability to work effectively in a team is assessed through a group project that is distributed in week 7. Students present the results of this analysis in class, and also write a short report that describes methods, results and interpretation.
12. Provide effective biostatistical advice as a member of a team with strong oral and written communication skills	BS853: Generalized Linear Models	Final Project: A data analysis project is distributed in week 8 and students work in groups to analyze the data using generalized linear models. Students present the results of this analysis in class, and also write a short report that describes methods, results and interpretation. Both the oral presentation and the written reports are assessed.
	BS857: Analysis of Correlated Data	Data analysis group project: Students analyze the data using appropriate methods for correlated data. Students present the results of this analysis in class, and also write a short report that describes methods, results and interpretation. Both the oral presentation and the written reports are assessed.

Table D17.3.3. Assessment of competencies for the MS in Environmental Health Data Analytics

Competency	Course	Assessment
1. Manage and analyze exposure assessment data.	EH730: Methods in Environmental Health Sciences	Environmental Data Collection and Analysis Project: This independent project allows each student to design a soil sampling or water-sampling plan, collect samples and analyze the data used to evaluate human exposure to metals measured in the soils or water. Students merge datasets, cleaning datasets and applying appropriate statistical models to manage and analyze exposure assessment data.
	EH811: Geographical Information Systems in Public Health	Final project and presentation: This assignment assesses students' ability to identify an environmental health problem, to collect data (either in the field or finding datasets), to apply GIS tools to explore solutions or support decisions, and summarize and explain their results in a professional format. Students find or collect exposure assessment data, link it to geographical and health data and present their analysis.

Competency	Course	Assessment
	EH872: Environmental Data and Modeling	Final project: Students will do a screening level exposure evaluation of an emerging compound: identity and uses; physical-chemical properties; literature review of environmental levels and health effects (if anything is known); estimates of human exposure by major routes; evaluation of uncertainty. This project will also involve analyzing exposure information, e.g., measured concentrations, physical-chemical properties. The project allows students to lead an independent analysis of chemical exposure.
	EH880: Capstone in Environmental Health and Management	Technical Report: Students select an environmental health issue or question for which they will identify possible data sources for an analysis in which they consider the health risks and benefits. The analysis will support their development of a plausible intervention strategy. Students manage and analyze exposure assessment data in order to determine the at-risk population for whom the intervention may be necessary.
2. Use medical and toxicological databases to identify data and information that informs understanding of exposure and risks of exposure.	EH730: Methods in Environmental Health Sciences	Environmental Data Collection and Analysis Project: This project requires students to design a soil sampling or water-sampling plan, collect samples and analyze the data used to evaluate human exposure to metals measured in the soils or water. Students query medical and toxicological databases to identify data and information that informs understanding of exposure to the metals measured in the project, as well as what the literature says about the risks of exposure.
3. Analyze data used in and evaluate the conclusions of risk assessments.	EH866: Risk Assessment Methods	Final Project: The final project begins at the start of the course where students conduct an EPA-type risk assessment on a chemical or other hazard of their choice. This project involves hazard, exposure and dose-response assessment and a quantitative uncertainty analysis.
4. Apply geographical and/or epidemiological approaches to environmental health analyses.	EH811: Geographical Information Systems in Public Health	Final Project and Presentation: This assignment assesses students' ability to identify an environmental health problem, to collect data (either in the field or finding datasets), to apply geographical information systems (GIS) tools to explore solutions or support decisions, and summarize and explain their results in a professional format. This assignment is a culmination of the skills learned throughout the course, in which students find or collect exposure and health data, link it to geographical and health data and present their analysis. All in class and homework assignments utilize GIS to find, analyze and present environmental health data.

Competency	Course	Assessment
	EH880: Capstone in Environmental Health and Management	Technical Report: Students select an environmental health issue or question for which they will identify possible data sources for an analysis in which they consider the health risks and benefits. The analysis will support their development of a plausible intervention strategy. This assessment meets the competency because as part of their analyses, students use a variety of approaches including geographical and/or epidemiological approaches to the environmental health analyses.
5. Apply multiple analytical approaches to help inform strategies to improve public health through environmental interventions	PH731: Analytical Methods and Management Strategies for Public Health Decision Making	Problem sets 1 and 2: Students apply several analytical approaches to policy analysis including decision analysis, multi-criteria decision analysis, cost-effectiveness analysis and cost-benefit analysis. Students use these strategies to inform policy decision making in specific scenarios.
	EH875: Case Studies in Environmental Decision Making	Problem sets: All 5 problem sets require use of analytical approaches to inform public health decision making. For instance, Problem set 1 asks students to consider several different scenarios for exposure to lead. Students are then asked to describe two interventions for reducing exposure, and to evaluate these interventions using decision analysis. The problem sets allow students to use skills in design of interventions and decision science.
	EH811: Geographical Information Systems in Public Health	Final Project and Presentation: This assignment assesses students' ability to identify an environmental health problem, to collect data (either in the field or finding datasets), to apply GIS tools to explore solutions or support decisions, and summarize and explain their results in a professional format. Students use multiple analytical GIS approaches to analyze their data and suggest potential interventions.
	EH880: Capstone in Environmental Health and Management	Technical Report: Students select an environmental health issue or question for which they will identify possible data sources for an analysis in which they consider the health risks and benefits. The analysis will support their development of a plausible intervention strategy. Students apply analytical approaches to identify a data-driven intervention or prevention strategy to improve public health.
6. Communicate technical content to multiple stakeholders in written and oral form.	EH730: Methods in Environmental Health Sciences	Environmental Data Collection and Analysis Project: This independent project allows students to design a soil sampling or water-sampling plan, collect samples and analyze the data used to evaluate human exposure to metals measured in the soils or water. Students prepare a memo to the resident (non-scientific public) as well as a technical report to a scientific audience that communicates the findings, conclusions and interventions (if necessary).

Competency	Course	Assessment
	EH866: Risk Assessment Methods	Final Project: The final project begins at the start of the course where students conduct an EPA-type risk assessment on a chemical or other hazard of their choice. This project involves hazard, exposure and dose-response assessment and a quantitative uncertainty analysis. Students prepare a final technical report and communicate the findings orally to the impacted community.
	EH811: Geographical Information Systems in Public Health	Final Project and Presentation: The final project assesses students' ability to identify an environmental health problem, to collect data (either in the field or finding datasets), to apply GIS tools to explore solutions or support decisions, and summarize and explain their results in a professional format, both written and oral. Students communicate their results to multiple parties, including colleagues, professors and in many occasions community or policy stakeholder.
	EH872: Environmental Data and Modeling	Final Project and Presentation: Projects will be presented orally to the class during the last two class sessions. A written paper is also required, no more than 15 pages double-spaced of text, including a one page executive summary aimed at a non-technical audience. The project requires oral and written communication of an exposure analysis, in both technical and lay language.
	EH880: Capstone in Environmental Health and Management	Technical Report: Students select an environmental health issue or question for which they will identify possible data sources for an analysis in which they consider the health risks and benefits. The analysis will support their development of a plausible intervention strategy. After conducting the technical analysis, students develop written and oral briefings for a technical audience and a brief that can be delivered in writing and orally to a legislative audience.

Table D17.3.4. Assessment of competencies for the MS in Epidemiology

Competency	Course	Assessment
1. Develop a scientific hypothesis, beginning with a review of existing literature, and	EP722: Data Collection Methods for Epidemiologic Research	Final Project: Students write an Approach section of a NIH grant application, including an overview, description of the study population, recruitment, exposures/interventions, data collection details; and strengths and limitations associated with the approach. Thus, students demonstrate skills in key aspects of designing and conducting an epidemiologic study.

Competency	Course	Assessment
design an epidemiologic study to assess the hypothesis validly and efficiently.	EP749: Applications of Introductory Epidemiology	Final Project and Oral Presentation: Students develop and present a study proposal addressing a novel research question of their choosing. Their proposal must include specific aims; an evidence-based study rationale; a detailed description of the study design and operational methods (data source, study population, enrollment procedures, and study variables); a logical data analysis plan; and a thoughtful description of the strengths and limitations of the proposed study. This assignment allows students to demonstrate skills developing a scientific hypothesis and designing an epidemiologic study to address their hypothesis.
	EP850: Applications of Intermediate Epidemiology	Final Project & Presentation: The final project requires students to conduct an epidemiologic study, examining the association between an exposure and a disease (assigned to each student) using data from the NHANES Epidemiologic Follow-Up Study. Students are charged with reviewing the literature, refining the study hypothesis, and developing and executing an analysis plan to assess the exposure-disease association. Students are required to conduct an analysis appropriate to the study design, consider potential confounders and other possible sources of bias, and assess potential interaction. Results are presented in both written, tabular, and oral formats. Thus, students demonstrate skills in reviewing the literature and designing an epidemiological study.
2. Design and implement data collection and management tools for epidemiologic research.	BS723: Introduction to Statistical Computing	Project 1: Students are given a raw dataset and asked to generate a dataset ready for analysis by creating new variables, formatting, and labelling them for analysis. This project provides students with skills in designing and implementing data management tools.
	EP722: Data Collection Methods for Epidemiologic Research	Workshops and Final Project: These assignments are hands-on exercises in data collection approaches, including development of questionnaires, online assessments, and ecological momentary assessments using telephone apps. For example, students develop an egocentric network survey to gain skills in carrying out a network analysis study. Students gain skills in the design and implementation of data collection tools for epidemiologic research through these assignments.
3. Analyze a complex epidemiologic data set using at least one computer-aided tool.	EP813: Intermediate Epidemiology	Data Analysis Assignment: Students use a publically available dataset to conduct crude and stratified analyses to examine the relation between a pre-specified exposure and disease outcome using SAS. Students interpret the results regarding the presence of confounding. This assignment allows students to demonstrate skills analyzing a complex dataset using a popular computer-aided tool.

Competency	Course	Assessment
	EP749: Applications of Introductory Epidemiology	Data Analysis Project: Students edit and refine preliminary results from prior homework assignments in-person peer review and instructor feedback, and synthesize these updated results into a comprehensive written report comprised of a study abstract and publication quality results tables. This project allows students to demonstrate skills in describing and analyzing a complex dataset using popular analytic tools.
	EP850: Applications of Intermediate Epidemiology	Final Project and Presentation: The final project requires students to conduct an epidemiologic study, examining the association between an exposure and a disease using data from the NHANES Epidemiologic Follow-Up Study. Students are charged with reviewing the literature, developing, and executing an analysis plan using SAS to assess the exposure-disease association. Students are required to conduct an analysis appropriate to the study design, consider potential confounders and other possible sources of bias, and assess potential interaction. Results are presented in both written, tabular, and oral formats. Thus, students demonstrate skills in analyzing a complex dataset using a popular computer-aided tool.
	EP817: Guided Epidemiology Study	Homework Assignments (6-12) and Final Manuscript: Students use SAS to perform analyses to test a hypothesis in an existing epidemiological study dataset. They present interim results in HW assignments and write methods, results and present tables/figures in a final manuscript. Thus, they gain experience analyzing complex epidemiological data using a popular computer-aided tool.
	EP912: Directed Research in Epidemiology	Research Report and Oral Presentation: Students work with faculty members to develop and conduct a hypothesis-driven analysis of an existing dataset, write a research report structured as a publishable manuscript, and give an oral presentation of the research to members of the Department. The project includes descriptive, crude and adjusted analyses of complex epidemiological data using Statistical Analysis System (SAS) enabling the student to demonstrate data manipulation and analysis skills using a popular computer-aided tool.
4. Communicate the results of research both orally and in writing.	EP817: Guided Epidemiology Study	Oral Presentations and Final Paper: Students present interim results in oral presentations or written homework assignments each week (HW2-12). Their final paper is a manuscript with introduction, methods, results and discussion sections and supporting tables and/or figure. Thus, students gain skills in oral and written communication of epidemiological research.

Competency	Course	Assessment
	EP912: Directed Research in Epidemiology	Research Report and Oral Presentation: Students work with faculty members to develop and conduct a hypothesis-driven analysis of an existing dataset, write a research report structured as a publishable manuscript, and give a 30-minute oral presentation of the research to members of the Department. The oral presentation is followed by a question and answer period. This process allows students to demonstrate skills in communicating epidemiological research to interested stakeholders. These skills are formally evaluated by designated faculty members.
5. Critically evaluate research reports and publications.	EP749: Applications of Introductory Epidemiology	Final Project & Oral Presentation: Students develop and present a study proposal addressing a novel research question of their choosing. Their proposal must include specific aims and an evidence-based study rationale, requiring critical evaluation of existing research reports and publications to identify gaps in current knowledge. In addition, students rely on critical evaluation of research reports to identify feasible design strategies that they can apply to their own proposals.
	EP813: Intermediate Epidemiology	3 Workshop Assignments: Students read published research papers and provide a critique of the epidemiologic design and analysis. Students also evaluate whether the interpretation of the study results is consistent with the strengths and limitations of the study. Thus, students gain skills critically evaluating scientific publications.
	EP912: Directed Research in Epidemiology	Research Report and Oral Presentation: Students work with faculty members to develop and conduct a hypothesis-driven analysis of an existing dataset, write a research report structured as a publishable manuscript, and give a 30-minute oral presentation of the research to members of the Department. The oral presentation is followed by a question and answer period. This process allows students to demonstrate skills in critically evaluating previously published studies and reports, as well as communicating epidemiological research to interested stakeholders.

Table D17.3.5. Assessment of competencies for the MS in Health Services and Systems Research

Competency	Course	Assessment
1. Analyze the role and effects of health policy in shaping the health systems and services being investigated.	PM740: Comparative Health Systems and Policy in Industrialized and BRIC Countries	Policy memo: Each student writes a policy memo addressed to a senior health official in one of the countries being studied in the course. The memo identifies a current health problem in the country and provides policy choices to address the problem. Each student describes how health policies in other countries have addressed similar health problems and provides argument and data that demonstrate the utility of such approaches to the country being studied.
	PM760: Health Law, Policy, and Policymaking	Policy brief: This is the culminating assignment of the semester. Students are to outline a specific legislative or regulatory change. They work with client stakeholders in a state (this year's projects are from CO, GA, ID, KS, MA, MS, and OH) on topics currently being considered by policymakers. The assignment requires students to use stakeholder analysis and root cause analysis to articulate a clear problem, identify a specific policy lever, and apply the best available evidence to develop a politically feasible solution.
	PM844: Health Policy and Policymaking for Public Health Researchers	Final Paper: The final paper is the culminating assignment of the semester. Students are tasked with arguing for a specific policy change. This requires them to identify a compelling health policy problem, digest the state of the evidence on that issue, and identify the policy levers available to government. Students need to be specific about which arm of the federal or state government has jurisdiction over the issue and which stakeholders are affected. Recommendations cannot be based on health service research evidence alone but need to take into account the political context.
	PM834: Health Regulation and Planning	Final Paper: Students identify a problem undermining human health and analyze its causes. They identify policies and programs that attack those causes, assess the efficacy, budgeted costs, political feasibility, and managerial feasibility of five alternative programs.
2. Compare the contributions (and limitations) of conceptual models of health systems and services, and choose	PH842: Introduction to Research Theory and Design	Study Critique: Using a structured template, students critically review a published empirical paper in the public health literature, identifying both strengths and weaknesses in the rationale for the study, the use of literature and conceptual model or theory driving the study, the research questions and/or hypotheses that were investigated, and the fit of the chosen methods with the types of data needed to address the study's aims.

Competency	Course	Assessment
relevant conceptual models to support study topics.	PM814: Contemporary Theoretical & Empirical Issues in Health Services	Structured Critical Commentaries (3): Each assignment consists of a brief (5-10 pages) commentary and critique of the published research literature discussed in class. Each commentary is written in response to focused questions that call for synthesis, analysis, and application of the materials presented in the course to problems of patient behavior and health services that call for integrative critiques of empirical research. In completing the assignment, students also formulate of relevant research questions.
	PM831: Implementation Science: Translating Research into Practice	Final Poster Presentation and Response to Queries: For the final class, students prepare a complete poster and an oral poster presentation, and they present their posters, both visually and orally, to a group of faculty reviewers. Multiple faculty (typically about 30) attend the poster presentation session, which is the culmination of the course, and posters are typically individually reviewed by 4-5 faculty members, who assess all aspects of the poster and presentation and provide written feedback. During the oral presentation of the poster, students are expected to talk about the conceptual model selected, why they chose this model and how it drives their theoretical thinking about and framing the proposed study.
3. Develop relevant and important research questions, grounded in critical and analytical reviews of the literature.	PH842: Introduction to Research Theory and Design	Draft of introduction, background, and research questions: Students complete a draft of their final course paper, which includes an introductory paragraph identifying the research topic and its importance, a brief review of the relevant literature that supports the need for further research in this area, and that describes the conceptual model or theory that underlies the research question(s), and a set of clearly stated research questions, and hypotheses, if applicable to the study design, that the student proposes to answer about this topic.
	PH843: Quantitative Methods for Public Health and Health Services Research	Across 3 assessments: Students are required to (1) submit a draft set of specific aims for a novel study of their choosing; (2) submit problem set #5 (study design) to justify their choice of study design and methodology, and (3) submit a final version of both specific aims and problem set #5 that respond to feedback from the instructor and from another student. Through this series of assignments, students develop, refine, and respond to student and instructor feedback regarding a specific research question chosen by the student. Assignments focus on refining the research question and on choosing appropriate study designs and statistical analyses to address the question.

Competency	Course	Assessment
	PH844: Qualitative Methods for Public Health and Health Services Research	Qualitative Research or Evaluation Proposal: The Proposal is a culmination of methodological theories and skills reviewed during the course. In this assignment, students are expected to formulate their research question, provide background on the state of the literature, and then describe the qualitative methods and procedures they would use to investigate their research problem. Attention to feasibility and ethics are critical. Students are expected to produce an organized, executable study, grounded in qualitative best practices.
	PM828: Advanced Qualitative Methods for HSR	Semester-long project: Selection of qualitative research question. The first step for the semester long project involves selection of a relevant research question. Students must write a coherent question and justification for this question. In the Final Paper, students must provide a brief literature review as justification for the research question they examined for their semester long project.
	PM814: Contemporary Theoretical & Empirical Issues in Health Services	Structured Critical Commentaries (3): Each assignment consists of a brief (5-10 pages) commentary and critique of the published research literature discussed in class. Each commentary is written in response to focused questions that call for synthesis, analysis, and application of the materials presented in the course to problems of patient behavior and health services that call for integrative critiques of empirical research. In completing the assignment, students also formulate of relevant research questions.
	PM831: Implementation Science: Translating Research into Practice	Quality Gap from Final Outline of Study: The first assignment for this class is a concept sheet that identifies a problem or quality gap in care. This quality gap is based on what is shown in the literature to be a problem of some intervention not getting implemented in practice. Students use this quality gap to create a research question.
4. Analyze the strengths and weaknesses of a variety of possible study designs that can appropriately address health	PH842: Introduction to Research Theory and Design	Study Critique: Using a structured template, students critically review a published empirical paper in the public health literature, identifying both strengths and weaknesses in the rationale for the study, the use of literature and conceptual model or theory driving the study, the research questions and/or hypotheses that were investigated, and the fit of the chosen methods with the types of data needed to address the study's aims.

Competency	Course	Assessment
systems and services research questions.	PH843: Quantitative Methods for Public Health and Health Services Research	Across 4 assessments: Students are required to: (1) provide a written review of another student's study design; (2) deliver a class presentation on selected topics from the textbook on study design and methodology; (3) describe strengths and weaknesses of their own study design in problem set #5 (study design), and (4) provide a final justification for their study design in a final version of both specific aims and problem set #5. Through these assessments, students were exposed to analysis of the strengths and weaknesses of a variety of study designs and to focus on a single study design of their own choosing in greater depth.
	PM950: Applied Studies in Health Services Research	Analytic Plan and Final Paper: The final paper includes an analytic plan. In this assignment, students will create a data analysis plan that defines and describes the data source, target population, primary outcomes, the exposure or independent variable, study limitations, and a step-by-step statistical analysis plan or analytic plan for conducting the data analysis. A critical aspect of the analytic plan is to assess the strengths and weaknesses of various study designs in an effort to select the optimal study design for the project. As such, students will justify their selection of study design and in a sensitivity analysis section, will suggest alternative methodological specifications for their study. Furthermore, in the final paper, each student will clearly identify limitations to their proposed approach and alternative strategies for addressing and/or testing key limitations.
5. Apply research methods that are appropriate to questions of interest, specifying study constructs, research questions, and appropriate approaches to data collection and analysis, with particular expertise in either quantitative or qualitative approaches.	PM950: Applied Studies in Health Services Research	Analytic Plan and Final Paper: An analytic plan (as included in the final paper) will be developed to address their research question using appropriate methods within health services research. In the assignment, students will justify why the proposed methods are appropriate, will explore alternative approaches and specifications, will clearly identify methodological limitations, and will receive constructive feedback from the instructor and from peers about the appropriateness and strength of the proposed approach. Once the analytic plan has been finalized and approved, students will then apply these methods to answer their research question. A summary of the analytic approach and interpretation of results will be included in the final paper, which will include specification of study research questions, constructs, and the data source and/or collection methods.

Competency	Course	Assessment
<p>6. Apply project and financial management tools to the conduct of research projects, ensuring that they remain on schedule and within resources constraints.</p>	<p>PM790: Proseminar: Tools for Project Management, Communication, Budgeting</p>	<p>Gantt chart: In this assignment, students are asked to develop a Gantt chart, including outlining the various required tasks for your project and the planned timeline. This will require students to thoroughly read through the assigned project protocol, have a strong understanding of the project components, and organize time effectively to ensure the project is complete within the timeframe. The Gantt Chart also requires students to assign tasks to staff, and consider overall staffing burden throughout the course of the project.</p>
		<p>Develop a Research Project Budget: In this assignment, student groups are asked to consider their team's project proposal and develop a project budget and justification. They are asked to consider how the project budget will affect their staffing (staff delegation log) and project organization (Gantt chart). This activity is meant to uncover the difficult and interconnected issues of staffing, timelines, and budget.</p>
<p>7. Develop, document, and employ procedures that ensure the reproducibility of the science, the responsible use of resources, mutual accountability with collaborators, and the ethical treatment of research subjects.</p>	<p>PH844: Qualitative Methods for Public Health and Health Services Research</p>	<p>Qualitative Research or Evaluation Proposal: The Proposal is a culmination of methodological theories and skills reviewed during the course. In this assignment, students are expected to formulate their research question, provide background on the state of the literature, and then describe the qualitative methods and procedures they would use to investigate their research problem. Attention to feasibility and ethics are critical. A detailed work plan and timeline are critical to ensuring the study attends to resources. A Human Subjects section requires attention to potential ethical issues and how they might be handled. Students are expected to produce an organized, executable study, grounded in qualitative best practices.</p>
	<p>PM831: Implementation Science: Translating Research into Practice</p>	<p>Final Poster: Students prepare a complete poster and an oral poster presentation, and they present their posters, both visually and orally, to a group of faculty reviewers. Faculty members assess all aspects of the poster and presentation and provide written feedback. Implementation science is very focused on stakeholder engagement, and with multidisciplinary teams, as implementation studies cannot occur without stakeholder engagement and buy-in, and student address the key stakeholders in their posters. Stakeholder engagement addresses the mutual accountability with collaborators component of the competency.</p>

Competency	Course	Assessment
	PM950: Applied Studies in Health Services Research	Analytic Plan, IRB Review Statement: Students create a data analysis plan that defines and describes the data source, target population, primary outcomes, the exposure or independent variable, study limitations, and a step-by-step statistical analysis plan or analytic plan for conducting the data analysis. The plan will be described with sufficient detail to ensure reproducibility; this includes clearly specifying the data source, sample inclusion and exclusion criteria, how outcomes and covariates were measured, final sample sizes for each outcome, and full model specifications. This plan will be pre-specified as to ensure integrity of the research. In addition, as to ensure the ethical treatment of research subjects and responsible use of resources, students will analyze federal requirements for review of Human Subjects and Non-Human Subjects research and in response, draft a statement of their project's need for IRB Review with a rationale for the project's classification based in the Federal Regulations.
8. Work collaboratively with interdisciplinary teams to carry out research and to effectively communicate research results.	PM760: Health Law, Policy, and Policymaking	Policy Brief: Students outline a specific legislative or regulatory change. They work with client stakeholders in a state (this year' projects include CO, GA, ID, KS, MA, MS, and OH) on topics currently being considered by policymakers. The assignment requires students to use stakeholder analysis and root cause analysis to articulate a clear problem, identify a specific policy lever, and apply the best available evidence to develop a politically feasible solution. Many of the assignments throughout the semester are individual, but the final policy brief is completed as a group. This requires each student to conduct research on their own but also to negotiate with each other and come to consensus solutions. Writing quality is an important component of the grade, emphasizing that it is not enough to have good ideas but they also need to be communicated effectively. The policy brief is submitted to the client stakeholder in their state, allowing the student to directly inform policymaking on their issue.
	PM844: Health Policy and Policymaking for Public Health Researchers	Legislative Testimony: Students are to argue for a specific policy change in a mock legislative hearing. They have 5 minutes to convince policymakers to care about their issue and to use evidence to support who needs to take action and what they need to do. This assignment challenges students to communicate about research results to a broader audience, which addresses the effective communication aspect of the competency. Furthermore, students are making arguments to an audience from diverse professional backgrounds.

Competency	Course	Assessment
	PM790: Proseminar: Tools for Project Management, Communication, Budgeting	Class Project: Teams will randomly draw for a target audience for their project presentation. The target audiences will be either funders, research participants, academic colleagues, or policy-makers. Based on that audience, they will be asked to develop a presentation to effectively communicate the process, findings, and implications of the group project's research. These group presentations will be graded both by the class as well as by the instructor based on whether the presentation effectively communicated the following topics with the topic audience in mind: research goals, research process, findings, and implications. This assignment addresses skills in effective communication across various target audiences.
9. Develop a research question, and identify and systematically analyze either existing literature and/or data that informs the question, and write a coherent and concise paper reporting the findings that is suitable for publication in a relevant journal.	PM822: Advanced Health Services Research Methods	Final Paper and Presentation: This competency is addressed by the final paper and presentation in the course. The paper and presentation reflect the literature review that is expected to be comprehensive and apply directly to the research questions/hypotheses that are proposed. The questions and hypothesis will be addressed through a rigorous data analysis using a secondary data base. This will be based on the study design proposed by the student. The analysis is expected to address the questions and hypotheses proposed and break new ground in a contemporary health services research question. This paper will be the first step towards a future paper to be submitted to a peer reviewed journal.
	PM950: Applied Studies in Health Services Research	Literature Review and Final Paper: Following selection of a research topic for the course, each student will conduct a review of literature (15-20 peer-reviewed journal articles or scholarly reports) and gap analysis that analyzes existing evidence on the subject matter. Using this information, students will systematically analyze the literature to refine their research question, such that the question addresses a gap in the literature and is justified by existing evidence. A synthesis of this information will be included in the students' final paper (background section). Based on this information, students will refine their research question and analyze data to inform the question. Findings will be drafted into a coherent and concise paper that is suitable for publication in a relevant journal, as the ultimate goal of the research project is to produce a manuscript for publication. To ensure that the paper is suitable for publication, students will engage in readings/discussions on developing effective tables for publication and will compare and contrast academic journals based on thematic fit and publishing metrics.

Table D17.3.6. Assessment of competencies for the MS in Public Health Nutrition

Competency	Course	Assessment
1. Articulate the determinants of public health nutrition challenges utilizing multi-level and life-course perspectives.	EP758: Nutritional Epidemiology	Grant Proposal: This project challenges students to select and apply appropriate study design and dietary assessment tools to a specified testable hypothesis to address a gap in understanding in nutritional epidemiology while working collaboratively as a team. The grant proposal requires integration and application of important concepts in nutritional epidemiology and involves active critical thinking, synthesis of research findings, and planning new research to address a public health nutrition determinant or challenge set in a specific population demographic and life stage.
	HS720: A Lifecourse Approach to Community Nutrition	Nutrition Environment Measures Survey (NEMS) Assignment: Students are trained to use this evidence-based validated tool to evaluate nutrition environments. Students gain an understanding of behavioral and environmental determinants of public health nutrition problems by assessing store and restaurant environments in disparate communities.
	SB820: Program Assessment	Neighborhood Observation Report, Tables & Map: Students visit a neighborhood; practice multiple approaches to observation; collect field data relevant to their topic; develop a map of community resources/assets/challenges, and explain how neighborhood features likely influential to health outcomes of interest. Students must articulate neighborhood features as a determinant of health outcomes.
	SB822: Program Evaluation	Individual Evaluation Proposal Students submit an evaluation proposal on a topic and target population of their choosing. Students must consider various determinants at different levels in designing and justifying their evaluation proposal.
	PH950: Public Health Nutrition Culminating Research Experience	Individual Final Presentation: Students present their culminating research experience in a 15-minute oral presentation, followed by a 10-15 minute Q&A discussion from faculty and peer students. Students will be assessed on presentation clarity, demonstration of understanding of determinants of public health nutrition challenges, and application of multi-level and/or life-course perspectives.
	HS950: Public Health Nutrition Culminating Research Experience	Individual Final Presentation: Students present their culminating research experience in a 15-minute oral presentation, followed by a 10-15 minute Q&A discussion from faculty and peer students. Students will be assessed on presentation clarity, demonstration of understanding of determinants of public health nutrition challenges, and application of multi-level and/or life-course perspectives.

Competency	Course	Assessment
2. Critically analyze and synthesize research findings to inform evidence-based nutrition policies and recommendations for future research.	HS551: Human Nutrition Science	On-line Assignments and Case Studies: A series of on-line assignments and mini case-studies are used to extend classroom-based learning. Students are challenged to critically analyze and synthesize nutritional science research evidence that informs evidence-based dietary guidelines, nutrition policies, and future research.
	EP758: Nutritional Epidemiology	Grant Proposal: This project challenges students to select and apply appropriate study design and dietary assessment tools to a specified testable hypothesis to address a gap in understanding in nutritional epidemiology while working collaboratively as a team. The grant proposal requires integration and application of important concepts in nutritional epidemiology and involves active critical thinking, synthesis of research findings, and planning new research.
	EH730: Methods in Environmental Health Sciences	Environmental Data Collection and Analysis Project: This independent project allows each student to design a garden soil sampling or tap water sampling plan, collect samples and analyze the data used to evaluate human exposure to metals measured in the soils or water. Students critically analyze and synthesize research findings to inform evidence-based nutrition policies and recommendations for future research.
	HS720: A Lifecourse Approach to Community Nutrition	Policy Memo Assignment: Students prepare a policy memo on a topic of controversy in public health nutrition affecting a specific vulnerable subgroup of the population. This project requires a critical analysis and synthesis of research evidence to inform their policy and recommendations for public health action and/or research.
	SB800: Obesity and Society	Final Group Proposal: Students work in teams to write an 8-10 page report describing a proposed public health intervention to promote healthy eating and physical activity and an accompanying evaluation plan. Proposals are assessed based on the analysis and synthesis of the research findings to inform and justify their proposed intervention.
	PH950/HS950: Public Health Nutrition Culminating Research Experience	Individual Final Proposal: Students write a 10-15 page proposal on their Culminating Research Experience. Proposals will be assessed based on students' synthesis and analysis of the research literature and the evidence-base used to propose recommendations for future research directions.

Competency	Course	Assessment
3. Demonstrate communication skills required to advocate for sustainable and scalable food systems and nutrition programs that are responsive to dynamic social, environmental, political, and economic contexts.	EH730: Methods in Environmental Health Sciences	Non-technical Memo (to general audience): This component of the Environmental Data Collection and Analysis assignment is an independent project that allows students to design a garden soil sampling or water sampling plan, collect samples and analyze the data used to evaluate human exposure to toxic metals measured in the soils or water. The student prepares a memo to the resident (non-scientific public) as well as a technical report to a scientific audience that communicates the findings, conclusions and interventions (if necessary) with the objective to advocate for sustainable and scalable food systems and nutrition programs that are responsive to dynamic social, environmental, political, and economic contexts.
	SB820: Program Assessment	Communications Product: Students prepare a communication product (e.g., op-ed, letter to the editor, press release) based on their CHA/CHIP recommendations. Students must be able to communicate and advocate their recommendations through writing to diverse audiences.
	ML721: US Food Policy	Mid-term Project: Students create a food policy brief that they deliver in both oral and written formats to review federal regulations surrounding one major U.S. food commodity, from agricultural production through safe transport, storage/processing, and consumption. Students apply written and oral communication skills to evaluate food systems and nutrition policies in the context of social, environmental, political and economic contexts.
	PH801: Community-Engaged Research: Theory, Methods, and Application	Final Presentation: Students present their final proposal via 10 minute oral presentations. The grading rubric includes points for content (-Did the presentation appropriately summarize the project? Did it effectively summarize the problem, the research question and the aims? Did the presentation address the literature?); the Use of Visuals / Slides (Were slides readable? Were images used effectively?); Presentation Style (Did the presenter engage with the audience? Was the presenter audible? Did they "up speak?" any distracting habits (e.g., hair flipping/fidgeting?); Timing (Did the presenter stay within allotted time? Was the talk well-paced (not too rushed, not too slow.)
	PH950/HS950: Public Health Nutrition Culminating Research Experience	Individual Final Presentation: Students present their culminating research experience in a 15-minute oral presentation, followed by a 10-15 minute Q&A discussion from faculty and peer students. Students will be assessed on communication skills and ability to advocate for public health nutrition interventions that hold potential for dissemination and that are responsive to various contexts.

Competency	Course	Assessment
4. Investigate the public health impacts of food systems and policies.	EH730: Methods in Environmental Health Sciences	Homework #3: Students identify potential points of contamination with food safety hazards along the farm-to-table food supply chain and develop recommendations for intervention; they describe conventional livestock production practices in the US and their implications for human health. By using foodborne illness tracking data in the US, they identify limitations in the health protections in the US food safety policies.
	PH950/HS950: Public Health Nutrition Culminating Research Experience	Individual Final Proposal: Students write a 10-15 page proposal on their Culminating Research Experience. This proposal covers this competency because students must apply principles of evaluation to describe and examine the public health impact of food systems, food policies, or other types of public health nutrition interventions.
5. Apply methodological skills needed to plan, conduct, critique, and use evaluation research to promote public health nutrition activities at the community and population levels.	EP758: Nutritional Epidemiology	Grant Proposal: This project challenges students to select and apply appropriate study design and dietary assessment tools to a specified testable hypothesis to address a gap in understanding in nutritional epidemiology while working collaboratively as a team. The grant proposal requires integration and application of important concepts and methodologies in nutritional epidemiology and involves active critical thinking, synthesis of research findings, and planning new research that has implications for public health promotion at the community and/or population levels.
	HS720: A Lifecourse Approach to Community Nutrition	Logic Model Assignment: Students are trained to develop logic models using two methods: 1) ATM 3-step approach (Antecedent conditions, Target conditions, Measurement indicators and objectives; and 2) W.K. Kellogg Foundation Logic Model Guide (Resources, program activities, outputs, outcomes and impact) to promote public health nutrition activities at the community and population levels.
	SB800: Obesity and Society	Group Final Proposal: Students work in teams and write an 8-10 page report describing a proposed public health intervention to promote healthy eating and physical activity and an accompanying evaluation plan. Proposals are assessed based on the logic model proposed and the methodological rigor and feasibility of the evaluation plan proposed.
	SB820: Program Assessment	Final Written Report & Presentation: Students integrate their demographic report, quantitative & qualitative health data findings, finalize their CHIP recommendations, and write a succinct document that conveys key findings and recommendations for action. Students must apply methodological skills in using evaluation research to advocate for their recommendations.

Competency	Course	Assessment
	PH801: Community-Engaged Research: Theory, Methods, and Application	Written Assignment D, Detailed Research Proposal Draft and Peer Review Study Section: Students submit their specific aims, background and methods sections as a complete draft research proposal. The proposal is then assigned to 2-3 other students in class who score and critique the proposal using NIH study section guidelines and templates. The proposals are then discussed at a mock study section prior to the final draft being submitted.
	PH950/HS950: Public Health Nutrition Culminating Research Experience	Individual Final Proposal: Students write a 10-15 page proposal on their Culminating Research Experience. Students must apply principles of evaluation to describe and critique a public health intervention, policy, or practice-based experience. Students will be asked to describe how their analysis informs future recommendations of how to promote public health nutrition at the community and population levels.

4) Identify required coursework and other experiences that address the variety of public health research methods employed in the context of a population health framework to foster discovery and translation of public health knowledge and a brief narrative that explains how the instruction and assessment is equivalent to that typically associated with a three-semester-credit course. Typically, the school will present a separate list and explanation for each degree program, but these may be combined if requirements are identical. (self-study document)

All students are introduced to the variety of public health research methods in PH700: Foundations of Public Health. The course is organized into three sections: foundations of the profession and science, biological foundations, and factors related to human health. Completion of the online course requires a total of approximately 45 hours of engagement, which is equivalent to the instruction and assessment time typically associated with a three credit course.

Quantitative and qualitative research units are presented in the context of a population health framework. Upon successful completion of the evidence-based research unit of the course, students are able to:

- Describe the steps involved in identifying and addressing public health problems
- Describe the role of surveillance systems in public health
- Describe the breadth of modern public health surveillance systems
- Explain how the characteristics of person, place, and time are used to formulate hypotheses in acute disease outbreaks and in studies of chronic diseases
- Distinguish among case reports, case series, cross-sectional surveys, and ecological studies and explain their importance
- Describe the difference between descriptive and analytic epidemiologic studies.
- Define and explain the distinguishing features of a cohort study and distinguish between retrospective and prospective cohort studies
- Define and explain the distinguishing features of a case-control study
- Explain the distinguishing features of an intervention study (clinical trial)
- List and define the three major threats to validity in analytical studies
- Describe the contributions of quantitative and qualitative research to public health

Upon completion of the qualitative research module, students are able to:

- Articulate the purpose and significance of qualitative research methods
- Determine when it is appropriate to use qualitative methods
- Illustrate ethical considerations in the conduct of qualitative methods
- Define the major qualitative research techniques, their strengths, limitations, and contexts in which they are best used
- Define and illustrate the importance of community-based participatory research (CBPR)

Additionally, students in every MA and MS program are required to address the variety of public health research methods through required coursework. The courses listed below focus on research methods employed in the context of a population health framework to foster discovery and translation of public health knowledge.

Biostatistics

- BS805: Intermediate Statistical Computing and Applied Regression Analysis
- BS810: Meta-Analysis for Public Health and Research
- BS849: Bayesian Modelling for Biomedical Research and Public Health
- BS852: Statistical Methods in Epidemiology
- BS856: Adaptive Design for Clinical Trials
- EP770: Concepts and Methods in Epidemiology

Applied Biostatistics

- BS728: Public Health Surveillance, a Methods Based Approach
- BS803: Statistical Programming for Biostatisticians
- BS806: Multivariable Analysis for Biostatisticians
- BS831: Genomic Data Mining and Statistics
- BS849: Bayesian Modelling for Biomedical Research and Public Health
- BS851: Applied Statistics in Clinical Trials
- BS852: Statistical Methods in Epidemiology
- BS853: Generalized Linear Models
- BS857: Analysis of Correlated Data
- BS858: Statistical Genetics I

Environmental Health Data Analytics

- EH730: Methods in Environmental Health Sciences
- EH811: Geographic Information Systems for Public Health
- EH866: Risk Assessment Methods
- EH872: Environmental Data and Modelling

Epidemiology

- BS722: Design and Conduct of Clinical Trials
- EP722: Data Collection Methods for Epidemiologic Research
- EP714: Introduction to Epidemiology
- EP749: Applications of Introductory Epidemiology
- EP857: Design and Conduct of Cohort Studies
- EP858: Design and Conduct of Case-Control Studies
- EP817: Guided Epidemiology Study or
- EP912 Directed Research in Epidemiology

Health Services and Systems Research

- PH842: Introduction to Research Theory & Design
- PH843: Quantitative Methods for Public Health and Health Services Research
- PH844: Qualitative Methods for Public Health and Health Services Research

- PM831: Implementation Science
- PM821: Advanced Quantitative Health Services Research Methods or
- PM828: Advanced Qualitative Methods

Public Health Nutrition

- HS551: Human Nutrition Science
- HS776: Nutritional Epidemiology
- EH730: Analytic Methods in Environmental Health Science
- EP758: Nutritional Epidemiology
- EP770: Concepts and Methods in Epidemiology
- PH801: Community-Engaged Research
- SB820: Program Assessment
- SB822: Program Evaluation

5) Briefly summarize policies and procedures relating to production and assessment of the final research project or paper. (self-study document)

MA in Biostatistics

Students in the MA in Biostatistics complete two comprehensive written examinations, one addressing theory and the other applied research in biostatistics. The applied research examination allows faculty to assess students' competence in conducting scholarly work in a professional and ethical manner guided by the principles of the profession. The applied examination is assessed by program faculty.

MS in Applied Biostatistics

Students are required to complete 400 hours (40 hours per week over 10 weeks) of practical training in the field. This practical training can be an extension of one of the required research rotations, or a separate industry-based internship in the field of biostatistics. Students are required to write a research paper based on their practical training. The student's faculty advisor or the program director supervises the training placement and assesses the final research paper.

MS in Environmental Health Data Analytics

EH880: Environmental Health and Management, the required capstone course, is based on a case covered in EH875: Case Studies in Environmental Decision Making (a required course), or an alternative case approved by the program director. Students are asked to develop an independent assessment of the case, including the environmental health background, supporting data, and the available policy options, and to prepare an analysis to characterize the implications of the policy options for a defined stakeholder audience. The end product will be a discovery-based research paper and an oral presentation appropriate for the defined audience. The capstone is an instructor-led course, which allows for regular feedback and guidance.

MS in Epidemiology

The capstone research experience requires a public presentation of research methods, results and interpretation of a research paper produced in EP817: Guided Epidemiology Study or EP912: Directed Research in Epidemiology. The research paper will be assessed by the course instructor. Satisfactory completion of the oral presentation will be judged by the research supervisor and program director. The evaluation is based on presentation skills and the student's ability to field questions.

MS in Health Services and Systems Research

Students complete a discovery-based research paper as part of the required capstone course, PM950: Applied Studies in Health Services Research. The research paper requires an analysis of existing literature and/or data to generate new insights. Students work directly with their academic advisor to gain hands-on experience in current health services and systems research practices.

MS in Public Health Nutrition

The culminating research experience provides the opportunity to integrate and apply classroom learning towards the development of a research-focused product. Students complete an integrative paper that combines their research interests and program training. Examples include but are not limited to: narrative reviews, systematic reviews, critical appraisal of existing policies or programs, and research concept proposals. Students meet with their faculty advisors to plan their integrative papers, submit a signed approval form, and complete the drafts and final product according to established deadlines.

6) Provide links to handbooks or webpages that contain the full list of policies and procedures governing production and assessment of the final research project or paper for each degree program. (electronic resource file)

The production and assessment of the final research project is outlined in each program's degree handbook or capstone syllabi, which are available as electronic resource files:

- [ERF D17.6.1](#). MA in Biostatistics Program Guide
- [ERF D17.6.2](#). MS in Applied Biostatistics Program Guide
- [ERF D17.6.3](#). MS in Environmental Data Analytics Program Guide
- [ERF D17.6.4](#). MS in Epidemiology Program Guide
- [ERF D17.6.5](#). MS in Health Services and Systems Research Program Guide
- [ERF D17.6.6](#). MS in Public Health Nutrition Program Guide

7) Include completed, graded samples of deliverables associated with the major paper or project. The school must provide at least 10% of the number produced in the last three years or five examples, whichever is greater. (electronic resource file)

SPH launched a new suite of Master of Science degrees in Fall 2017. Example deliverables that reflect the new or revised program requirements will be available for the final self-study.

The final research project for Master of Arts in Biostatistics students is available as [ERF D17.7.1](#).

8) Briefly explain how the school ensures that the instruction and assessment in basic public health knowledge is generally equivalent to the instruction and assessment typically associated with a three-semester-credit course. (self-study document)

Students are assessed on each of the foundational public health learning objectives in PH700: Foundations of Public Health. The course is organized into three sections: foundations of the profession and science, biological foundations, and factors related to human health, each of which requires 15 hours of study. (4 hours total)

Boston University courses must be equivalent to at least 3 hours per week per credit hour through a combination of scheduled contact and independent student effort. PH700 requires approximately 45 hours of study, which is equivalent to the instruction and assessment time typically associated with a three credit course.

9) Include the most recent syllabus for any course listed in the documentation requests above, or written guidelines for any required elements that do not have a syllabus. (electronic resource file)

The most recent syllabi are available in the electronic resource files, as indicated below.

- [D17.9.1](#). Syllabi for the MA in Biostatistics
- [D17.9.2](#). Syllabi for the MS in Applied Biostatistics
- [D17.9.3](#). Syllabi for the MS in Environmental Health Data Analytics
- [D17.9.4](#). Syllabi for the MS in Epidemiology
- [D17.9.5](#). Syllabi for the MS in Health Services and Systems Research
- [D17.9.6](#). Syllabi for the MS in Public Health Nutrition

10) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)

Recognizing that the field and needs of students have changed, the school launched three revised and two new academic public health Master of Science degree programs in Fall 2017. These programs are designed to provide rigorous training in research in an intensive one-year full-time format or in two years part-time. Currently, a number of the programs suffer from low enrollment. A plan to increase marketing efforts and admissions outreach has been put in place in order to boost enrollment.

D18. Academic Public Health Doctoral Degrees

Students enrolled in the unit of accreditation's doctoral degree programs that are designed to prepare public health researchers and scholars (eg, PhD, ScD) complete a curriculum that is based on defined competencies; engage in research appropriate to the degree program; and produce an appropriately advanced research project at or near the end of the program of study.

These students also complete coursework and other experiences, outside of the major paper or project, that substantively address scientific and analytic approaches to discovery and translation of public health knowledge in the context of a population health framework.

These students complete doctoral-level, advanced coursework and other experiences that distinguish the program of study from a master's degree in the same field.

The program defines appropriate policies for advancement to candidacy, within the context of the institution.

Finally, students complete coursework that provides instruction in the foundational public health knowledge at an appropriate level of complexity. This instruction may be delivered through online, in-person or blended methodologies, but it must meet the following requirements while covering the defined content areas.

- The instruction includes assessment opportunities, appropriate to the degree level, that allow faculty to assess students' attainment of the introductory public health learning objectives.
- The instruction and assessment of students' foundational public health knowledge are equivalent in depth to the instruction and assessment that would typically be associated with a three-semester-credit class, regardless of the number of credits awarded for the experience or the mode of delivery.

The program identifies at least one required assessment activity for each of the following foundational public health learning objectives.

Profession & Science of Public Health

1. Explain public health history, philosophy and values
2. Identify the core functions of public health and the 10 Essential Services
3. Explain the role of quantitative and qualitative methods and sciences in describing and assessing a population's health
4. List major causes and trends of morbidity and mortality in the US or other community relevant to the school
5. Discuss the science of primary, secondary and tertiary prevention in population health, including health promotion, screening, etc.
6. Explain the critical importance of evidence in advancing public health knowledge

Factors Related to Human Health

7. Explain effects of environmental factors on a population's health
8. Explain biological and genetic factors that affect a population's health
9. Explain behavioral and psychological factors that affect a population's health
10. Explain the social, political and economic determinants of health and how they contribute to population health and health inequities
11. Explain how globalization affects global burdens of disease
12. Explain an ecological perspective on the connections among human health, animal health and ecosystem health (eg, One Health)

1) List the curricular requirements for each non-DrPH public health doctoral degree in the unit of accreditation, excluding requirements associated with the final research project. The list must indicate (using shading) each required curricular element that a) is designed expressly for doctoral, rather than master's, students or b) would not typically be associated with completion of a master's degree in the same area of study. The school will present a separate list for each degree program and concentration as appropriate. (self-study document)

The school is home to three PhD programs: environmental health, epidemiology, and health services research. The PhD in Biostatistics is a joint program with the Graduate School of Arts and Sciences, with the majority of coursework and advising being done at SPH. Tables D18.1.1 through D18.1.4. indicate the coursework for each PhD program, with courses specific to the doctoral programs highlighted in grey.

Table D18.1.1. Coursework for the PhD in Biostatistics

MA575	Linear Models
MA581	Probability
MA582	Mathematical Statistics
EP770	Concepts and Methods in Epidemiology
BS805	Intermediate Statistical Computing and Applied Regression Analysis
BS852	Statistical Methods in Epidemiology
BS853	Generalized Linear Models with Applications
BS857	Analysis of Correlated Data
MA781	Estimation Theory
MA782	Hypothesis Testing
<i>Students complete at least 12 additional credits from the following:</i>	
BS722	Design and Conduct of Clinical trials
BS728	Public Health Surveillance
BS775	Applications of Statistical Methods in Clinical Research
BS810	Meta-analysis for Public Health and Medical Research
BS820	Logistic Regression and Survival Analysis
BS821	Categorical Data Analysis
BS825	Advanced Methods in Infectious Disease Epidemiology
BS831	Genomics Data Mining and Statistics
BS845	Applied Statistical Modeling and Programming in R
BS849	Bayesian Modeling for Biomedical Research and Public Health
BS851	Applied Statistics in Clinical Trials I
BS854	Bayesian Methods in Clinical Trials
BS856	Adaptive Designs for Clinical Trials
BS858	Statistical Genetics I
BS859	Applied Genetic Analysis
BS861	Applied Statistics in Clinical Trials II

Table D18.1.2. Coursework for the PhD in Environmental Health

EH705	Toxicology for Public Health
EH710	Physiologic Principles for Public Health
EH730	Methods in Environmental Health Science
EH805	Environmental Health Science, Policy & Law
BS723 or BS730	Introduction to Statistical Computing Introduction to R
EP714	Introduction to Epidemiology
Elective coursework in one of the following major training areas:	
Environmental Epidemiology	
EH757	Environmental Epidemiology
BS852	Statistical Methods in Epidemiology
EP813	Intermediate Epidemiology
EP854	Advanced Epidemiology
Exposure Assessment	
EH804	Exposure Assessment
EH811	Geographic Information Systems in Public Health
EH872	Environmental Data and Modeling
BS805	Intermediate Statistical Computing & Applied Regression Analysis
Toxicology	
EH713	Molecular Biology
EH840	Advanced and Emerging Topic in Toxicology
EH866	Risk Assessment Methods
BS830 or BS805	Design and Analysis of Microarray Sequencing and Next Generation Sequencing Intermediate Statistical Computing & Applied Regression Analysis

Table D18.1.3. Coursework for the PhD in Epidemiology

Required coursework	
EP854	Advanced Epidemiology
EP855	Advanced Epidemiology Seminar: Issues in Study Design
EP860	Novel Analytical Methods for Epidemiology
Students complete coursework from the following list of approved courses:	
EP813	Intermediate Epidemiology
EP817	A Guided Epidemiology Study
EP820	Perspectives in Epidemiology Studies
EP850	Applications of Intermediate Epidemiology
EP857	Design and Conduct of Cohort Studies
EP858	Design and Conduct of Case-control Studies
EP861	Quantitative Bias Analysis Methods for Epidemiologic Research
PH729	Social Network Analysis for Public Health Research
BS820	Logistic Regression and Survival Analysis
BS821	Categorical Data Analysis
BS851	Applied Statistics in Clinical Trials I
BS852	Statistical Methods for Epidemiology
BS855	Bayesian Modeling for Biomedical Research & Public Health
BS857	Analysis of Correlated Data

Table D18.1.4. Coursework for the PhD in Health Services Research

PH842	Research Theory and Design
PH843	Quantitative Methods for Health Services and Other Public Health Research
PH844	Introduction to Qualitative Research Methods
PM814	Contemporary Theoretical and Empirical Issues in Health Services
PM824	Theory and Research on Organizations
PM826	Health, Illness, and the Use of Health Services
PM837	Evaluating Health Care Quality
PM842	Health Economics for Health Services Research
PM844	Health Policy & Policy Making for Public Health Researchers
PM821 or PM828	Advanced Quantitative Health Services Research Methods Advanced Qualitative Method
Elective coursework in one of the following emphasis areas	
Economics	
PM822	Advanced Health Services Research Methods
PM842	Health Economics for Health Services
EC501	Microeconomic Theory
EC507	Statistics for Economics
EC508	Econometrics
EC581	Health Economics
PM807	Introduction to Cost Effectiveness Analysis
PM855	Cost Effectiveness and Decision Analysis
Healthcare Policy	
PM822	Advanced Health Services Research Methods
PM828	Advanced Seminar in Qualitative Research Methods for Health Services Research
LW850	Public Health Law
GH888	Seminar in Global Health Policy Issues
Implementation Science/Organizational Change	
PM822	Advanced Health Services Research Methods
PM828	Advanced Seminar in Qualitative Research Methods for Health Services Research
PM831	Implementation Science
OB844	Managing Organizational Change
AN590	Seminar: Theory, Method, and Techniques in Fieldwork
PH854	Program and Policy Evaluation
PH729	Social Network Analysis for Public Health Research
Quality/Outcomes	
PM822	Advanced Health Services Research Methods
PM828	Advanced Seminar in Qualitative Research Methods for Health Services Research
PM807	Introduction to Cost Effectiveness Analysis
PM830	Developing Patient-Based Health Status and Outcomes Measures
PM855	Cost Effectiveness and Decision Analysis

2) Provide a matrix that indicates the required assessment opportunities for each of the defined foundational public health learning objectives (1-12). Typically, the school will present a separate matrix for each degree program, but matrices may be combined if requirements are identical. (self-study document)

All PhD students demonstrate mastery of the public health foundational learning objectives through the completion of PH700, a course comprised of three online modules:

- I. Basics and Principles
 1. The history of public Health
 2. What is public health? (includes core functions; ten essential services; primary, secondary, and tertiary prevention; and philosophy and values)
 3. Ethics in public health
 4. The importance of evidence in public health (surveillance, descriptive and analytical epidemiology; quantitative research)
 5. Qualitative Research in Public Health
 6. Trends in mortality, morbidity, and preventive measures in the United States

- II. Biological Foundations for Public Health
 1. Some basic cell biology (the molecules of life; basic cell structure and function)
 2. DNA, heredity, and drug resistance
 3. Infectious agents
 4. Respiratory health (basic physiology plus asthma, effects of smoking, emphysema, air pollution, greenhouse gases)
 5. Heart health (atherosclerotic heart disease)
 6. Cancer

- III. Factors Related to Human Health
 1. Effects of environmental factors on a population's health
 2. Behavioral and psychological factors that affect a population's health
 3. Social, political and economic determinants of health and how they contribute to population health and health inequities
 4. How globalization affects global burdens of disease
 5. An ecological perspective on the connections among human health, animal health and ecosystem health (One Health)

Table D18.2.1. Foundational public health learning objective coverage for the academic public health doctoral degrees

Content	Course number(s) or other educational requirements	Specific component (reading, lecture, discussion)
1. Explain public health history, philosophy and values		
2. Identify the core functions of public health and the 10 Essential Services*		
3. Explain the role of quantitative and qualitative methods and sciences in describing and assessing a population's health		

4. List major causes and trends of morbidity and mortality in the US or other community relevant to the school	PH700: Foundations of Public Health	Online assessments on each topic and a final examination.
5. Discuss the science of primary, secondary and tertiary prevention in population health, including health promotion, screening, etc.		
6. Explain the critical importance of evidence in advancing public health knowledge		
7. Explain effects of environmental factors on a population's health		
8. Explain biological and genetic factors that affect a population's health		
9. Explain behavioral and psychological factors that affect a population's health		
10. Explain the social, political and economic determinants of health and how they contribute to population health and health inequities		
11. Explain how globalization affects global burdens of disease		
12. Explain an ecological perspective on the connections among human health, animal health and ecosystem health (eg, One Health)		

3) Provide a matrix that lists competencies for each relevant degree and concentration. The matrix indicates at least one assessment activity for each of the listed competencies. Typically, the school will present a separate matrix for each concentration. Note: these competencies are defined by the school and are distinct from the introductory public health learning objectives defined in this criterion. (self-study document)

Competency maps for the academic doctoral degrees are available as Tables D18.3.1. – D18.3.4.

Table D18.3.1. Assessment of competencies for the PhD in Biostatistics

Competency	Course	Assessment
1. Demonstrate understanding of the theory and principles of probability, statistical inference, and biostatistical methods, and their relevance to epidemiologic studies and other	CAS MA575: Linear Models	Final exam: Comprehensive exam assessing mastery of the theory of simple and multiple linear regression; regression with polynomials or factors; analysis of variance; weighted and generalized least squares; transformations; regression diagnostics; variable selection; and extensions of linear models.
	CAS MA581: Probability	Final Exam: In class comprehensive exam covering foundations of probability, combinatorics, conditioning and independence, Bayes's rules, random variables and distributions, random vectors and joint marginal distributions, independence, continuous random vectors, expectations, variance, loss functions.

Competency	Course	Assessment
biomedical research areas.	CAS MA582: Mathematical Statistics	Final Exam: In class comprehensive exam covering Normal and other distributions. Moment-generating functions. Interval estimation. Point estimation including sufficiency, Rao-Blackwell theorem, completeness, uniqueness, Rao-Cramer inequality, and maximum likelihood estimation, with potential additional areas that may include tests of hypothesis, uniformly most powerful tests, uniformly most powerful unbiased tests, likelihood ratio test, chi-squared test, comparison of means and variances, ANOVA, regression, and some nonparametric tests, order statistics and their asymptotics.
	EP770: Concepts and Methods in Epidemiology	Data Analysis Project: Integrative out-of-class project that integrates concepts of data analysis by defining an addressable research question, utilizing directed acyclic graphs (DAGs) for confounder selection, choosing appropriate exposure and outcome measurements, calculating crude and adjusted measures of association, presenting results, and interpreting findings with respect to strengths, limitations, and biases.
	BS805: Intermediate Statistical Computing and Applied Regression Analysis	Course Project: Integrative multi-week, take home project that assesses the mastery of preparing data for analysis that includes the creation of subsets, construction of new variables, use of arrays, possible conversion between univariate and multivariate data structures., and the merging of data sets. It also requires the ability to identify the assumptions, limitations, and results of multi-factorial ANOVA, ANCOVA, analysis of repeated Gaussian measures, and multiple linear regression analysis, and to report complete results using tables and text in paragraph form.
	BS852: Statistical Methods for Epidemiology	Final exam: In class comprehensive exam assessing the mastery of concepts in study design and data analysis for confounding, evaluation of statistical model fit, accounting for missing data in analysis, and mediation analysis.
	BS853: Generalized Linear Models with Applications	Final Project: Take home data analysis project that assesses the mastery of statistical models for the analysis of quantitative and qualitative data including logistic regression for binary and binomial data, nominal and ordinal multinomial logistic regression for multinomial data, Poisson regression for count data, and Gamma regression for data with constant coefficient of variation, as well as generalized estimating equations (GEE) as an extension to the generalized models.
	GRS MA781: Estimation Theory	Final exam: In class comprehensive exam assessing the mastery of parametric point estimation, optimality, bayes, and minimax estimation, principles of data reduction, decision theory, nonparametric and interval estimation.

Competency	Course	Assessment
	GRS MA782: Hypothesis Testing	Final Exam: In class, comprehensive exam assessing the mastery of fundamental results and recent developments in hypothesis testing, such as the Neyman-Pearson lemma, uniformly most powerful tests, and false discovery control, as well as hypothesis testing using both parametric and nonparametric methods, considering both the frequentist and Bayesian approaches.
2. Design, conduct, and submit for publication biostatistical research that will propose a new statistical method or will provide new information about the properties of existing methods.	Doctoral Dissertation	As evidenced by the dissertation document and oral defense, demonstration of mastery through the development at the doctoral level of research examining methods in biostatistics that involve the theory of statistical estimation, hypothesis testing, or both that advance the field.
3. Apply appropriate biostatistical methods for the design and analysis of biomedical research.	CAS MA575: Linear Models	Final exam: Comprehensive exam assessing mastery of the theory of simple and multiple linear regression; regression with polynomials or factors; analysis of variance; weighted and generalized least squares; transformations; regression diagnostics; variable selection; and extensions of linear models.
	BS805: Intermediate Statistical Computing and Applied Regression Analysis	Course project: Integrative multi-week, take home project that assesses the mastery of preparing data for analysis that includes the creation of subsets, construction of new variables, use of arrays, possible conversion between univariate and multivariate data structures., and the merging of data sets. It also requires the ability to identify the assumptions, limitations, and results of multi-factorial ANOVA, ANCOVA, analysis of repeated Gaussian measures, and multiple linear regression analysis, and to report complete results using tables and text in paragraph form.
	BS852: Statistical Methods for Epidemiology	Final exam: In class comprehensive exam assessing the mastery of concepts in study design and data analysis for confounding, evaluation of statistical model fit, accounting for missing data in analysis, and mediation analysis.
	BS853: Generalized Linear Models with Applications	Final Project: Take home data analysis project that assesses the mastery of statistical models for the analysis of quantitative and qualitative data including logistic regression for binary and binomial data, nominal and ordinal multinomial logistic regression for multinomial data, Poisson regression for count data, and Gamma regression for data with constant coefficient of variation, as well as generalized estimating equations (GEE) as an extension to the generalized models.

Competency	Course	Assessment
4. Provide biostatistical collaboration and consultation as a member of a team engaged in biomedical research.	Research assistantships or other approved research positions required for all doctoral students.	Evaluation each semester of the quality of work by the assistantship mentor and the Biostatistics Program Committee.
5. Communicate statistical methods and findings clearly to both statistician and non-statisticians.	CAS MA575: Linear Models	Final exam: Comprehensive exam assessing mastery of the theory of simple and multiple linear regression; regression with polynomials or factors; analysis of variance; weighted and generalized least squares; transformations; regression diagnostics; variable selection; and extensions of linear models.
	EP770: Concepts and Methods in Epidemiology	Data Analysis Project: Integrative out-of-class project that integrates concepts of data analysis by defining an addressable research question, utilizing directed acyclic graphs (DAGs) for confounder selection, choosing appropriate exposure and outcome measurements, calculating crude and adjusted measures of association, presenting results, and interpreting findings with respect to strengths, limitations, and biases.
	BS805: Intermediate Statistical Computing and Applied Regression Analysis	Course project: Integrative multi-week, take home project that assesses the mastery of preparing data for analysis that includes the creation of subsets, construction of new variables, use of arrays, possible conversion between univariate and multivariate data structures., and the merging of data sets. It also requires the ability to identify the assumptions, limitations, and results of multi-factorial ANOVA, ANCOVA, analysis of repeated Gaussian measures, and multiple linear regression analysis, and to report complete results using tables and text in paragraph form.
	BS852: Statistical Methods for Epidemiology	Final exam: In class comprehensive exam assessing the mastery of concepts in study design and data analysis for confounding, evaluation of statistical model fit, accounting for missing data in analysis, and mediation analysis.
	BS853: Generalized Linear Models with Applications	Final Project: Take home data analysis project that assesses the mastery of statistical models for the analysis of quantitative and qualitative data including logistic regression for binary and binomial data, nominal and ordinal multinomial logistic regression for multinomial data, Poisson regression for count data, and Gamma regression for data with constant coefficient of variation, as well as generalized estimating equations (GEE) as an extension to the generalized models.
	BS857: Analysis of Correlated Data	Final Exam: In class comprehensive exam assessing the mastery of the analysis of correlated observations in a regression framework, including repeated measures

Competency	Course	Assessment
		analysis of variance based on both likelihood-based methods and quasi-likelihood (i.e. GEE) methods in which marginal, random effects and transition models can be applied.
6. Effectively teach biostatistical theory and practice to non-statisticians.	Co-Teaching or teaching assistantships in courses in the Biostatistics Department at SPH.	Review of TA and teaching ratings by the Biostatistics Program Committee.

Table D18.3.2. Assessment of competencies for the PhD in Environmental Health

Competency	Course	Assessment
1. Communicate the basic characteristics of major chemical, physical, and biological hazards and the properties that govern the hazards' behavior in the environment	EH705: Toxicology for Public Health	Homework 1: Students read an article about fracking. They must identify 3 toxic agents in fracking fluid and characterize them, identify the routes and timing of exposure for the general population and workers, identify potential adverse health outcomes. This assessment requires students to identify and classify multiple toxic agents and articulate those findings.
2. Explain the scientific characteristics (e.g., route of exposure, dose response, mode of action) of major chemical, physical, and biological hazards that result in human health risk	EH710: Physiologic Principles for Public Health	Homework #10: Apply knowledge of respiratory physiology to predict the effects of obstructive lung disease due to asthma, and restrictive lung disease due to pneumoconioses on pulmonary function.
	EH705: Toxicology for Public Health	Homework 10: Students construct a technical "fact sheet" for chlorpyrifos, including information on chemical characteristics, common routes of exposure, disposition, mechanisms of toxicity and regulatory values and what they are based on. Students must identify and communicate exposures, disposition, mechanisms of action and doses relevant to those mechanisms of action for chlorpyrifos.
	EH840: Advanced and Emerging Topics in Toxicology	Final Project: Students are assigned a paper from the literature, based on their choice of toxicant and adverse outcome. Students identify the hypothesis and conclusions and consider how the results from that paper fit into the relevant literature, as a whole. Students propose what the "next step" should be to investigate the toxicant/endpoint. Students must consider the relevance of the exposure/endpoint to human health. Students must identify and communicate common human exposures, disposition, mechanisms of action and how human exposure levels relate to the mechanism of action for their assigned toxicant and adverse health outcome.

Competency	Course	Assessment
3. Explain and analyze genetic, physiologic, and social factors that affect the susceptibility to adverse health outcomes following exposure to environmental hazards	EH710: Physiologic Principles for Public Health	Module Exam #1: Analyze serological data and determine previous exposure and occurrence of an infectious disease.
	EH804: Exposure Assessment	Final Report: Students prepare a written report summarizing the results from their exposure assessment field study, including a one-page executive summary for non-scientific audiences and a technical write-up. Students incorporate an evaluation of the literature linking their exposure of interest with health outcomes, including characterization of susceptible populations.
4. Critically evaluate and interpret the hypothesis, experimental design, methods, and results presented in a paper from a technical journal article in an environmental health discipline (toxicology, epidemiology, exposure assessment, environmental policy)	EH840: Advanced and Emerging Topics in Toxicology	Final Project: Students are assigned a paper from the literature, based on their choice of toxicant and adverse outcome. Students identify the hypothesis and conclusions and consider how the results from that paper fit into the relevant literature, as a whole. Students propose what the "next step" should be to investigate the toxicant/endpoint. Students must consider the relevance of the exposure/endpoint to human health. In this assessment, students critique the results/conclusions of the assigned paper in the context of the primary literature investigating the assigned toxicant and adverse endpoint.
	EH804: Exposure Assessment	Journal Article Critique: Students are assigned an exposure assessment article from the peer-reviewed literature and are asked to formally critique it through a structured response to 13 pre-defined questions, including an examination of study hypotheses, study design features that allow authors to address hypotheses, key findings, and significant limitations.
5. Identify data gaps and formulate testable hypotheses about critical questions in environmental health (epidemiology, toxicology, exposure assessment, environmental policy)	EH730: Methods in Environmental Health Science	Environmental Data Collection and Analysis Project: This independent project allows each student to formulate a testable hypothesis regarding lead in garden soils or tap water, design a soil sampling or water sampling plan, collect samples, analyze the data (identifying data gaps) to evaluate human exposure to metals and make evidence-based predictions regarding health outcomes. Students present their conclusions in the context of existing policy.
	EH804: Exposure Assessment	Case Study Exposure Protocol: Students are given a hypothetical scenario in which they are asked to determine if lead in drinking water could be a significant problem for their community. Students must design a protocol to address the question. This assessment requires students to give explicit consideration of how one answers a policy-relevant question with limited data and resources, as well as how to formulate a testable hypothesis given a vague problem statement.

Competency	Course	Assessment
		<p>Problem Set #2: Students are given a stylized dataset of concentrations of a contaminant in homes, workspaces, and blood of workers, and are asked to do formal hypothesis testing to determine where concentrations are highest and whether home or work is more strongly associated with personal exposures. This is directly responsive to the competency, through the statistical tests and questions asking about data limitations and the implications.</p>
		<p>Final Report: Students prepare a written report summarizing the results from their exposure assessment field study, including a one-page executive summary for non-scientific audiences and a technical write-up. Students conduct explicit hypothesis testing within their dataset, and given limited time in the field sampling, are asked to describe data limitations and next steps that could be taken to address data gaps.</p>
	<p>EH840: Advanced and Emerging Topics in Toxicology</p>	<p>Final Project: Students are assigned a paper from the literature, based on their choice of toxicant and adverse outcome. Students identify the hypothesis and conclusions and consider how the results from that paper fit into the relevant literature, as a whole. Students propose what the "next step" should be to investigate the toxicant/endpoint. Students must consider the relevance of the exposure/endpoint to human health. Students identify a data gap from their assessment of the literature on their assigned toxicant and adverse outcome and propose a hypothesis and study design to fill that data gap.</p>
	<p>EH805: Environmental Health Science, Policy, and Law</p>	<p>Chemicals Policy Debate (written component): Students research and present positions regarding the extent to which the Lautenberg Amendment to the Toxics Substances Control Act fills data gaps and critical questions in environmental health.</p>
<p>6. Design and implement data collection strategies and rigorous evaluations to test hypotheses using novel or current techniques</p>	<p>EH730: Methods in Environmental Health Science</p>	<p>Environmental Data Collection and Analysis Project: This independent project allows each student to use the literature to define a testable hypothesis, design a garden soil sampling or tap water sampling plan, collect samples and analyze the data with the objective of evaluating potential exposures to arsenic, manganese and lead. Students clean datasets, calculate summary statistics, conduct rigorous evaluations to test hypotheses using novel or current techniques.</p>

Competency	Course	Assessment
	EH804: Exposure Assessment	<p>Case Study Exposure Protocol: Students are given a hypothetical scenario in which they are asked to determine if lead in drinking water could be a significant problem for their community. Students must design a protocol to address the question. This assessment requires students to give explicit consideration of how one answers a policy-relevant question with limited data and resources, as well as how to formulate a testable hypothesis given a vague problem statement.</p> <p>Final Report: Students prepare a written report summarizing the results from their exposure assessment field study, including a one-page executive summary for non-scientific audiences and a technical write-up. Students are responsible for designing and implementing an exposure assessment field study and for analyzing the resulting data using appropriate statistical techniques.</p>
7. Analyze and interpret environmental health data	EH730: Methods in Environmental Health Science	Homeworks (all): Students access environmental health literature and databases (including CDC NHANES) for data for multiple regulated chemicals including lead in paint in residences, chlorpyrifos, flame retardants and perfluorinated chemicals and then they analyze and interpret environmental health data.
	EH705: Toxicology for Public Health	Homework 2: Students are given dose response data. They are required to generate a dose response curve and to interpret dose response data. This assessment requires students to generate dose response analyses from primary toxicological data.
		Homework 4: Students assess the characteristics of a toxicant that will influence its absorption following oral exposure. They also calculate the bioavailability of a chemical via different routes of exposure and identify the route of exposure most likely to result in significant toxicity.
	Homework 6: Students analyze biotransformation data in several species and explain how differences in biotransformation relate to potential for toxicity indicated by difference in LD50s. Students also plot and evaluate elimination data. This assessment requires students to analyze and interpret biotransformation, toxicity and elimination data.	
EH804: Exposure Assessment	Problem Set #2: Students are given a stylized dataset of concentrations of a contaminant in homes, workspaces, and blood of workers, and are asked to do formal hypothesis testing to determine where concentrations are highest and whether home or work is more strongly associated with personal exposures. This is directly responsive to the competency, through the statistical tests and questions asking about data limitations and the implications.	

Competency	Course	Assessment
		Final Report: Students prepare a written report summarizing the results from their exposure assessment field study, including a one-page executive summary for non-scientific audiences and a technical write-up. Students are responsible for analyzing and interpreting the data from their exposure assessment field study by using appropriate statistical techniques.
	EH840: Advanced and Emerging Topics in Toxicology	Homework 2: Students investigate the absorption, bioavailability, and toxicity of polycyclic aromatic hydrocarbons, as well as biomarkers of exposure. Students must analyze data to compare bioavailability data from different routes of exposure to explain differences in toxicity and to interpret biomarker data to assess exposures.
		Homework 3: Students plot and interpret chemical elimination data. Students also use data on dioxin body burden and characteristics of dioxin elimination to determine exposures.
		Homework 7: Students are provided raw dose response data, from which they must plot a dose response curve and identify the effective dose 50. Students also are provided dose response data from 3 different chemicals from which they must determine relative potency and efficacy and determine how the chemicals would activate a receptor in a mixture.
8. Identify appropriate intervention strategies for specific environmental health problems	EH730: Methods in Environmental Health Science	Homeworks (all): Students are asked to use the exposure-disease model in a variety of situations drawn from the literature, news cycle, experience of the instructors. Examples include lead in tap water, PFAS in cooking pots, bacteria in foods, noise from airports, and students are asked to identify appropriate intervention strategies for specific environmental health problems.
		Non-technical memo (to general audience): As part of the Environmental Data Collection and Analysis project, each student designs a soil sampling or water sampling plan, collect samples and analyze the data with the objective of evaluating exposures to arsenic, manganese and lead. They clean the datasets, determine whether the data are normally distributed (and if not, how to use them). They calculate summary statistics, compare the data with relevant standards and guidelines and the primary literature to interpret their findings in a single page memo and orally in order to identify appropriate intervention strategies for specific environmental health problems.

Competency	Course	Assessment
	EH804: Exposure Assessment	Final Report: Students prepare a written report summarizing the results from their exposure assessment field study, including a one-page executive summary for non-scientific audiences and a technical write-up. Students prepare the report in response to problems articulated by a community stakeholder, and are explicitly asked to offer solutions rather than just delineate problems.
9. Prepare scientific manuscripts for publication in peer-reviewed journals in the field of environmental health	Doctoral Dissertation	Dissertation: The dissertation usually takes the form of three papers meeting current standards of publication in peer-reviewed journals. The completed dissertation—including abstract, introduction, and conclusion—must be submitted to and approved by the dissertation committee and the outside reader.
10. Communicate scientific results at national and/or international conferences in the field of environmental health	Doctoral Dissertation	Submission, acceptance and presentation of oral and/or poster abstracts of scientific research at national and or international conferences (e.g., international Society for Environmental Epidemiology, International Society for Exposure Science, Society of Toxicology.)

Table D18.3.3. Assessment of competencies for the PhD in Epidemiology

Competency	Course	Assessment
1. Formulate research hypotheses that can be evaluated through empirical epidemiological investigation.	EP854: Advanced Epidemiology	Exams: The first exam in this course covers various aspects of study design including how to ask a causal question. The material for the course covers the difference between causal and predictive hypotheses and the material is covered on the first exam. The exam assesses the students' ability to formulate an appropriate epidemiologic hypothesis.
2. Critically evaluate the advantages and disadvantages of epidemiologic study designs applied to particular etiologic associations.	EP855: Advanced Epidemiology Seminar: Issues in Study Design	Paper: Students research and write a 5-10 page paper on a topic that addresses methodological questions. The questions are proposed by the students and approved by the instructor as addressing a component of epidemiologic theory. Students must be able to articulate the implications and application of their chosen methodologic questions with respect to the conduct of epidemiology research studies.
		Final Exam: Students are given a final exam in which they select one of two questions and write for two hours on that question. The final exam includes several subparts that deal with different aspects of epidemiological study design. The exam requires students to evaluate different epidemiological study designs.

Competency	Course	Assessment
3. Analyze and interpret epidemiologic studies using appropriate methods.	EP854: Advanced Epidemiology	Problem Sets: Understanding and application of the competency is covered in homework 1 when students analyze data using counterfactual types, homework 2 when they analyze data on effect modification, and homework 3 when they analyze data on misclassification and p-values.
	EP855: Advanced Epidemiology Seminar: Issues in Study Design	Paper: Students research and write a 5-10 page paper on a topic that addresses methodological questions. The questions are proposed by the students and approved by the instructor as addressing a component of epidemiologic theory. Students must be able to evaluate and apply information from published epidemiologic studies that is relevant to the methodologic question addressed in their paper.
	EP860: Novel Analytical Methods for Epidemiology	Final Project. The final project has students analyze a dataset that they have access to, in order to ask a causal question using the methods practiced in class (e.g., marginal structural models, mediation analysis, instrumental variables, regression discontinuity, propensity score, etc.). They then write up and interpret their findings. The final project assesses the students' ability to analyze and interpret epidemiologic data using appropriate methods.
4. Explain the theoretical underpinnings of epidemiology, including new and traditional study designs.	EP854: Advanced Epidemiology	Problem Sets: Most problem sets in the class address this competency. For example, in homework 1 has students use an applied example from the counterfactual theory framework. These assessments evaluate a student's comprehension of foundational and evolving theories within epidemiology.
	EP855: Advanced Epidemiology Seminar: Issues in Study Design	Paper: Students research and write a 5-10 page paper on a topic that addresses methodological questions. The questions are proposed by the students and approved by the instructor as addressing a component of epidemiologic theory. Students must be able to demonstrate their understanding of aspects of epidemiologic theory fundamental to the discipline.
	EP860: Novel Analytical Methods for Epidemiology	Final Project: The final project has students using their own data to conduct a causal analysis. As part of their write up, the students discuss the theoretical underpinnings of the methods and the limitations of the approach.
5. Demonstrate understanding of sources of bias and approaches to evaluating and controlling bias.	EP854: Advanced Epidemiology	Exams: Each quiz is focused on some aspect of bias in epidemiologic research. Quiz 1 covers confounding, quiz 2 covers DAGs and selection bias, and quiz 3 covers misclassification. The final exam reviews all of these concepts. Through these assessments, the students must demonstrate their understanding of bias and how to evaluate and control it.

Competency	Course	Assessment
	EP855: Advanced Epidemiology Seminar: Issues in Study Design	<p>Final Exam: Students are given a final exam in which they select one of two questions, and write for two hours on that question. The final exam includes several subparts that deal with different aspects of epidemiological study design. The exam requires students to demonstrate understanding of sources of bias as well as approaches to evaluating and controlling bias.</p> <p>Paper: Students research and write a 5-10 page paper on a topic that addresses methodological questions. The questions are proposed by the students and approved by the instructor as addressing a component of epidemiologic theory. Students must be able to explain how the methodologic topic of their paper is affected by, evaluates, and/or controls for bias.</p>
	EP860: Novel Analytical Methods for Epidemiology	Final Project: Students implement one of the methods to control sources of bias using a dataset that they have access to in order to answer a causal question. Through this assessment, students must not only demonstrate their understanding of biases in epidemiologic research, but also their application of the methods to evaluate and control bias.
6. Demonstrate proficiency in data collection, data analysis, and written summaries of statistical analyses.	EP860: Novel Analytical Methods for Epidemiology	<p>Homework Assignments: Each session in the course introduces the students to an applied example of using novel data analysis methods in SAS. In each assignment, students demonstrate their ability to analyze epidemiologic data and provide a written discussion of the analytic approach and the results.</p> <p>Final Project: Students must demonstrate their mastery of data analysis using the novel methods presented. Students then write up their results, describing the methods and their limitations. Students demonstrate their ability to analyze epidemiologic data and provide a written discussion of the analytic approach and the results.</p>
7. Demonstrate expertise in at least one substantive area of epidemiology and apply that expertise to preparation of the dissertation proposal.	Dissertation proposal	Proposal: Students must submit a 6,000-word proposal that describes the three dissertation studies to be conducted. The proposal addresses the competency through the student's presentation of the epidemiologic rationale for the study, the biological mechanism(s) that underlie the exposure-disease relationship, and a critical review of epidemiologic and other studies that set the stage for the dissertation. With the proposal, the student articulates why the hypotheses are important and how the Proposed studies and analytic strategies will evaluate those hypotheses.

Competency	Course	Assessment
8. Perform all the steps of conducting a hypothesis-driven epidemiologic study, from developing hypotheses, to designing, analyzing, and interpreting results, to writing up findings in the form of a publication-quality manuscript; as demonstrated by the PhD dissertation, which requires three manuscripts judged to be suitable for publication.	Dissertation	Dissertation: This competency is addressed through the written submission and oral defense of the dissertation.

Table D18.3.4. Assessment of competencies for the PhD in Health Services Research

Competency	Course	Assessment
1. Identify key factors in the context of health and health care systems, institutions, actors, and environment that have the potential to influence provision and use of health services. These may include policy, organization and financing of healthcare services. They may also include social disparities and determinants that may affect access, as well as factors such as biology, behavior and culture that may influence individual health and the use of services.	PM837: Evaluating Health Care Quality	<p>Homework Assignment #1 Students align a healthcare quality problem into a quality framework using the structure-process-outcome framework. In doing so, they identify the specific quality domains under which the problem falls, such as timeliness (i.e. access) and equity (i.e. social determinants of health). Students must identify key structural and process-related factors that may worsen or improve the quality problem, including features of the health care system, institution, actors, and/or environment.</p> <p>Final project (paper and presentation: The final project focuses on a quality-related topic of interest to students where quality can be assessed at the individual, provider, state, or national level. The type of quality assessed includes one or more of the types discussed in the course: clinical processes and outcomes, patient safety, patient-centered outcomes, and/or health care access. Students will use both individual and composite measures to either (1) assess variation in quality across geographic areas, (2) compare subgroup differences in quality (e.g. by patient characteristics such as race/ethnicity or by provider/health system characteristics), or (3) estimate the relationship between key policy, health system, or patient-level factors and quality. In doing so, students will discuss how key policy-, system-, or patient-level factors affect quality, which may be defined as individual health outcomes, access, and/or use of services.</p>

Competency	Course	Assessment
<p>2. Examine, critique, modify, and develop theory-based conceptual models of health services use. Identify and examine the use of theoretical perspectives derived from foundational fields that provide rationales for both HSR study topics and conceptual approaches to them. These fields can include anthropology, demography, economics, epidemiology, management, organizational science, political science, psychology and/or economics.</p>	<p>PM824: Theory and Research on Organizations</p>	<p>Weekly Topic Teaching by Students as Primary or Secondary/Tertiary Discussant: The course is in seminar format. Each PhD student serves as the primary discussant for at least one class session and two times as secondary/tertiary discussant for additional class sessions. The primary discussant must synthesize, interpret, and critique six assigned weekly readings comprised of topical peer-reviewed articles, in collaboration with the secondary/tertiary discussants that week. Tactically, the primary discussant will: (1) Prepare approximately 3-5 in-depth questions for the class to discuss; (2) Lead and pace the discussion by means of an in-class presentation. For each article discussed, the class addresses: study constructs, research objectives and hypotheses, and methods selection.</p>
	<p>PM842: Health Economics for Health Services Research</p>	<p>Homeworks 1 and 2: Students are required to examine selected empirical articles and critique their application of economic theory to guide their statistical specifications.</p>
<p>3. Develop original, relevant and important research questions to pursue in HSR that are grounded in both a critical analysis of prior HSR literature and relevant theoretical perspectives.</p>	<p>PM844: Health Policy & Policy Making for Public Health Researchers</p>	<p>Final Paper: Students are tasked with arguing for a specific policy change. This requires them to identify a compelling health policy problem, digest the state of the evidence on that issue, and identify the policy levers available to government. Students need to be specific about which arm of the federal or state government has jurisdiction over the issue and which stakeholders are affected. Students need to present and weigh the best available health services research literature and apply relevant health services research theoretical models. However, recommendations cannot be based on evidence alone but need to take into account the political context.</p>
<p>4. Identify and analyze the strengths and weaknesses of a variety of possible study designs that can appropriately address specific health services research questions. Methods include</p>	<p>PH844: Introduction to Qualitative Research Methods</p>	<p>Qualitative Research or Evaluation Proposal: The Proposal is a culmination of methodological theories and skills reviewed during the course. In this assignment, students are expected to formulate their research question, provide background on the state of the literature, and then describe the qualitative methods and procedures they would use to investigate their research problem. Students are expected to produce an organized, executable study, grounded in qualitative best practices.</p>

Competency	Course	Assessment
<p>interventional, comparative and observational approaches; qualitative and quantitative approaches; and are derived from foundational health services fields and different types and sources of data.</p>	<p>PM842: Health Economics for Health Services Research or equivalent</p>	<p>Research Paper: Research paper evaluation will have a similar design to the process of submitting academic research papers for publication. The level of achievement in the paper should be modeled as closely as possible on the publication model. Topics and outlines must be approved in advance and the last class will feature 10 minute presentations by all students of their papers to the entire class. Topic and outline review ensure that the student's chosen study design appropriately addresses the specific health services research question.</p>
<p>5. Based on relevant theory/concepts and the research question(s) at hand, develop and apply a health services research design, specifying study constructs, research objectives and hypotheses and utilize methods that reliably and validly measure these constructs and outcomes of interest. Select optimal methodological approach, in combination as necessary, to answering key health services research questions.</p>	<p>PM824: Theory and Research on Organizations</p>	<p>Research Proposal Paper and Presentation: The final 15-page Research Proposal Paper requires students to: (1) apply one or more organizational theories (covered in the course) to a current phenomenon or issue in the health care sector; (2) identify a conceptual framework (or create a novel theory-based framework); (3) develop hypotheses based on the particular theory; (4) outline a rigorous quantitative, qualitative or mixed-methods protocol (with Gantt chart timetable of execution); and (5) conclude with expected implications of the study. Research paper evaluation will have a similar design to the process of submitting academic research papers for publication. In addition, students present the proposal to an expert panel, composed of PhD research faculty, and to fellow students in the last two course sessions. Expert panelists provide plus/delta verbal feedback to presenters and written summary comments to the instructor that inform evaluation of the paper.</p>
<p>6. Identify appropriate data collection strategies to answer research questions. Collect and manage primary health and healthcare utilization data and/or assemble and manage existing data from public and private data sources in accordance with research design.</p>	<p>PM842: Health Economics for Health Services Research or equivalent</p>	<p>Research Paper: Research paper evaluation will have a similar design to the process of submitting academic research papers for publication. The level of achievement in the paper should be modeled as closely as possible on the publication model. Topics and outlines must be approved in advance and the last class will feature 10 minute presentations by all students of their papers to the entire class. Topic and outline review includes public data acquisition, database construction and management plan, variable definitions, and specification of estimates in accordance with research design.</p>

Competency	Course	Assessment
7. Choose and apply a range of appropriate analytical techniques to data in order to explore various types of HSR questions. Utilize appropriate combination of analytic techniques to deepen data analysis and interpretation.	PM837: Evaluating Health Care Quality	Homeworks 2, 3, 4 and 5: These assignments require students to use individual data to create quality summary scales and composite measures, and then to examine correlation among measures. Homework 5 emphasizes interpretation of actual measures from WHO to compare health systems.
	PM842: Health Economics for Health Services Research or equivalent	Research Paper: Research paper evaluation will have a similar design to the process of submitting academic research papers for publication. The level of achievement in the paper should be modeled as closely as possible on the publication model. Topics and outlines must be approved in advance and the last class will feature 10 minute presentations by all students of their papers to the entire class. Topic and outline review includes assessment of link between conceptual model and statistical specification, including consideration of alternative hypotheses and threats to the preferred interpretation.
8. Develop, document and employ procedures that ensure the reproducibility of the science, the responsible use of resources, mutual accountability with collaborators, and the ethical treatment of research subjects.	PM824: Theory and Research on Organizations	Research Proposal Paper and Presentation: Among other requirements, the final 15-page Research Proposal Paper requires students to outline a rigorous quantitative, qualitative or mixed-methods protocol (with Gantt chart timetable of execution). The protocol should document procedures to ensure reproducibility, efficient use of resources, clear division of tasks among team members, and compliance with ethical standards. Research paper evaluation will have a similar design to the process of submitting academic research papers for publication. In addition, students present the proposal to an expert panel, composed of PhD research faculty, and to fellow students. Expert panelists provide plus/delta verbal feedback to presenters and written summary comments to the instructor that inform evaluation of the paper.
9. Work collaboratively in teams within and across disciplines to develop and disseminate HSR knowledge; assembling and leading teams with the necessary combinations of knowledge and expertise.	PM842: Health Economics for Health Services Research or equivalent	Research Paper: Research paper evaluation will have a similar design to the process of submitting academic research papers for publication. The level of achievement in the paper should be modeled as closely as possible on the publication model. Topics and outlines must be approved in advance and the last class will feature 10 minute presentations by all students of their papers to the entire class. This is a team project with teams randomly assembled to include a variety of student backgrounds and levels of experience.

Competency	Course	Assessment
<p>10. Effectively communicate the process, findings, and implications of health services research via multiple modes, including via peer-reviewed publications, oral presentations and via technology. Be able to communicate findings to multiple stakeholders and audiences including funders, research participants, colleagues, policy-makers and managers.</p>	<p>PM844: Health Policy & Policy Making for Public Health Researchers</p>	<p>Blog Post: A blog post is to be written linking evidence to a current policy issue in the style of the Incidental Economist or the New England Journal of Medicine Perspective section for a more general audience than a typical peer-reviewed journal article. This assignment addresses written communication of health services research via technology to a specific target audience.</p>
		<p>Legislative Testimony: The testimony is a mock legislative hearing in which they have a few minutes to convince policymakers to take action. Using the topic they are focused on for their final project, they are to argue for a health policy change, including defining the problem, applying evidence, and convincingly articulating why this issue should make it onto the crowded policy agenda.</p>
		<p>Final Paper: The final project is the culminating assignment of the semester in which they are tasked with arguing for a specific policy change. The assignments throughout the semester build on each other, requiring students to communicate their recommendations to different audiences. The final paper is written for academics and is meant to be in the style of grant literature review or thesis prospectus. Students need to present and weigh the best available health services research literature and apply relevant health services research theoretical models.</p>

4) Identify required coursework and other experiences that address the variety of public health research methods employed in the context of a population health framework to foster discovery and translation of public health knowledge and a brief narrative that explains how the instruction and assessment is equivalent to that typically associated with a three-semester-credit course. Typically, the school will present a separate list and explanation for each degree program, but these may be combined if requirements are identical. (self-study document)

All students are introduced to the variety of public health research methods in PH700: Foundations of Public Health. The course is organized into three sections: foundations of the profession and science, biological foundations, and factors related to human health. Completion of the on-line course requires a total of 45 hours of engagement, which is equivalent to the instruction and assessment time typically associated with a three credit course.

Quantitative and qualitative research units are presented in the context of a population health framework. Upon successful completion of the evidence-based research unit of the course, students are able to:

- Describe the steps involved in identifying and addressing public health problems
- Describe the role of surveillance systems in public health
- Describe the breadth of modern public health surveillance systems
- Explain how the characteristics of person, place, and time are used to formulate hypotheses in acute disease outbreaks and in studies of chronic diseases
- Distinguish among case reports, case series, cross-sectional surveys, and ecological studies and explain their importance
- Describe the difference between descriptive and analytic epidemiologic studies

- Define and explain the distinguishing features of a cohort study and distinguish between retrospective and prospective cohort studies
- Define and explain the distinguishing features of a case-control study
- Explain the distinguishing features of an intervention study (clinical trial)
- List and define the three major threats to validity in analytical studies
- Describe the contributions of quantitative and qualitative research to public health

Upon completion of the qualitative research module, students are able to:

- Articulate the purpose and significance of qualitative research methods
- Determine when it is appropriate to use qualitative methods
- Illustrate ethical considerations in the conduct of qualitative methods
- Define the major qualitative research techniques, their strengths, limitations, and contexts in which they are best used
- Define and illustrate the importance of community-based participatory research (CBPR)

Additionally, each academic doctoral program curriculum requires students to address the variety of public health research methods. The courses listed below focus on research methods employed in the context of a population health framework to foster discovery and translation of public health knowledge in each discipline.

Biostatistics

- BS728: Public Health Surveillance, a Methods Based Approach
- BS821: Categorical Data Analysis
- BS831: Genomic Data Mining and Statistics
- BS849: Bayesian Modelling for Biomedical Research and Public Health
- BS852: Statistical Methods in Epidemiology
- BS853: Generalized Linear Models
- BS856: Adaptive Design for Clinical Trials
- BS857: Analysis of Correlated Data
- EP770: Concepts and Methods in Epidemiology

Environmental Health

- EH730: Methods in Environmental Health Sciences
- EH811: Geographic Information Systems for Public Health
- EH866: Risk Assessment Methods
- EH872: Environmental Data and Modelling
- EP714: Introduction to Epidemiology
- EP854: Advanced Epidemiology

Epidemiology

- BS821: Categorical Data Analysis
- BS855: Bayesian Modeling for Biomedical Research & Public Health
- EP854: Advanced Epidemiology
- EP855: Advanced Epidemiology Seminar: Issues in Study Design
- EP857: Design and Conduct of Cohort Studies
- EP858: Design and Conduct of Case-control Studies
- EP860: Novel Analytic Methods for Epidemiology
- EP861: Quantitative Bias Analysis Methods for Epidemiologic Research

Health Services Research

- PH842: Introduction to Research Theory & Design
- PH843: Quantitative Methods for Public Health and Health Services Research
- PH844: Qualitative Methods for Public Health and Health Services Research

- PM837: Evaluating Health Care Quality
- PM842: Health Economics for Health Services Research
- PM821: Advanced Quantitative Health Services Research Methods
- PM828: Advanced Qualitative Method

5) Briefly summarize policies and procedures relating to production and assessment of the final research project or paper. (self-study document)

SPH academic public health doctoral degrees require a doctoral dissertation and oral defense as the final research project. The doctoral dissertation is a written report of each student's independent and original research.

Biostatistics

Upon successful completion of the qualifying examinations and required coursework, doctoral students select a dissertation advisor who will guide them through their research. The dissertation consists of original research in the development of statistical methodology for biomedical or epidemiologic applications. It is expected that the dissertation content will address a relevant question in statistical methodology and will pose a new approach, extend an existing approach, or provide novel application of an existing method. Two approaches to the dissertation are allowed. The first is a single body of work comprehensively addressing one original problem. The second format consists of two or three problems in a single area of research. For either format, the content of the dissertation should be at least equal to the content of three publishable journal articles. Doctoral students work with their dissertation advisors to develop a dissertation prospectus, which the department evaluates and approves. Doctoral students meet with their dissertation committee at least twice per year and present on the status of their work to students and faculty at least once per year. Doctoral candidates present an oral defense of their dissertation before a five-member committee.

Environmental Health

Upon successful completion of qualifying exams, the student works with their dissertation advisor to form a dissertation committee. Each doctoral student submits a Request to Form Dissertation Committee form and writes a proposal for their planned research. Each research proposal demonstrates to the dissertation committee that the student understands how to conduct the proposed research and includes a detailed plan for accomplishing the work. The dissertation usually takes the form of three papers meeting current standards of publication in peer-reviewed journals. The papers are original work by the student; a review article does not meet this standard. Further, at least two of the three papers that make up a dissertation must be closely related, forming a body of work. The completed dissertation—including abstract, introduction, and conclusion—is submitted to and approved by the dissertation committee and the outside reader before the student formally announces a defense date. At the defense, the student presents their research for approximately one hour. The dissertation advisor then invites questions—first from the dissertation committee and outside reader, and then from others. Following the defense, the thesis committee and the outside reader confer and agree on final approval for granting of the doctoral degree. If approved, the doctoral student completes an Approval to Grant PhD in Environmental Health form.

Epidemiology

After successfully completing the qualifying examinations, students submit a dissertation concept letter to the Epidemiology Doctoral Committee briefly proposing their dissertation topic. Once approved, the student submits a dissertation proposal which must be approved by all members of the dissertation committee and the Epidemiology Doctoral Committee. Students then begin to conduct their research, and make short oral presentations on the status of their dissertation at an annual Epidemiology Doctoral Student Presentation Day. This presentation serves as a formal assessment of the student's dissertation progress. The doctoral dissertation consists of three manuscripts of publishable quality research that

address a common theme and ordinarily comprises an introduction, at least three chapters presenting the original research, a discussion or conclusion, bibliography, and appendices as appropriate. The research in the chapters must meet the current standards of publication quality in refereed journals such as American Journal of Epidemiology, American Journal of Public Health, or Annals of Epidemiology. The defense date is scheduled once the program director has received the written dissertation, with the understanding that the defense may be rescheduled pending comments from the faculty or outside readers.

Health Services Research

Within six months of the successful completion of the Admission to Candidacy Exam, the PhD candidate submits the Dissertation Topic/Committee Approval Form to the Health Services Research Programs Committee for review and feedback. Once approved, the doctoral candidate proceeds with developing and writing the full dissertation proposal which is evaluated and approved solely by the candidate's dissertation committee. After the student's dissertation proposal is preliminarily approved by the committee, the student defends the proposal in a formal oral defense. After a successful proposal defense, the student submits the Dissertation Proposal Completion Record form and carries out the proposed dissertation work. The completed dissertation must display proficiency with application of research and analytic skills (quantitative, qualitative and/or mixed methods). The typical dissertation includes five chapters, which includes an introduction, three chapters presenting original research, and a conclusion with implications for the field. Each individual paper should address a clearly defined research question within that general content area - strong dissertations often include multiple types of studies to show different areas of methodologic strength. One paper may be a systematic literature or scoping review. A final draft of the entire dissertation is sent to dissertation committee members, and the committee must grant approval before the student defends.

6) Provide links to handbooks or webpages that contain the full list of policies and procedures governing production and assessment of the final research project or paper for each degree program. (electronic resource file)

The production and assessment of the final research project is outlined in each program's degree handbook, which are available as electronic resource files:

- [ERF D18.6.1](#). Handbook for the PhD in Biostatistics
- [ERF D18.6.2](#). Handbook for the PhD in Environmental Health
- [ERF D18.6.3](#). Handbook for the PhD in Epidemiology
- [ERF D18.6.4](#). Handbook for the PhD in Health Services Research

7) Include completed, graded samples of deliverables associated with the advanced research project. The school must provide at least 10% of the number produced in the last three years or five examples, whichever is greater. (electronic resource file)

Sample deliverables associated with the advanced research project are available as electronic resource files:

- [ERF D18.7.1](#). PhD in Biostatistics dissertations
- [ERF D18.7.2](#). PhD in Environmental Health dissertations
- [ERF D18.7.3](#). PhD in Epidemiology dissertations
- [ERF D18.7.4](#). PhD in Health Services Research dissertations

8) Briefly explain how the school ensures that the instruction and assessment in introductory public health knowledge is generally equivalent to the instruction and assessment typically associated with a three semester-credit course. (self-study document)

Students are assessed on each of the foundational public health learning objectives in PH700: Foundations of Public Health. The course is organized into three sections: foundations of the profession and science, biological foundations, and factors related to human health. Mastery of each topic area is demonstrated by achieving a passing grade on the assessments at the end of each section and on the final examination that draws on content from all sections.

Each section of PH700 requires 15 approximately hours of study. Boston University courses offered during a typical semester must be equivalent to at least 3 hours per week per credit hour through a combination of scheduled contact and independent student effort. PH700 requires approximately 45 hours of study, which is equivalent to the instruction and assessment time typically associated with a three credit course.

9) Include the most recent syllabus for any course listed in the documentation requests above. (electronic resource file)

Syllabi for the PhD programs are available as electronic resource files, as indicated below.

- [D18.9.1](#). Syllabi for the PhD in Biostatistics
- [D18.9.2](#). Syllabi for the PhD in Environmental Health
- [D18.9.3](#). Syllabi for the PhD in Epidemiology
- [D18.9.4](#). Syllabi for the PhD in Health Services Research

10) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)

The SPH academic doctoral degrees are well established and engage faculty at all stages of the program. The newly formed BU [Office of Professional Development and Postdoctoral Affairs](#) helps transition students to postdoctoral training and SPH Career Services and Practicum Office staff are working with the program directors to offer professional development workshops for doctoral students. Faculty program directors are also working to consolidate the research methods coursework offered in each program to ensure students receive a more interdisciplinary experience.

Transitioning to the fully-funded doctoral student model has been a challenge for each program. Full funding requires a significant investment by the school and caps the number of students admitted each year. The small class size limits the positive effects of a true cohort and limits enrollment in upper level courses. Recruiting underrepresented minority and international students is another challenge that each program is working to address with their respective admissions committees, working closely with the Assistant Dean for Diversity and Inclusion and the Admissions Office staff.

D19. All Remaining Degrees

Students enrolled in any of the SPH's degree programs that are not addressed in Criteria **D2**, **D3**, **D9**, **D17** or **D18** complete coursework that provides instruction in the foundational public health knowledge at a level of complexity appropriate to the level of the student's degree program.

- The instruction includes assessment opportunities, appropriate to the degree level, that allow faculty to assess students' attainment of the foundational public health learning objectives. Assessment opportunities may include tests, writing assignments, presentations, group projects.
- The instruction and assessment of students' foundational public health knowledge are equivalent in depth to the instruction and assessment that would typically be associated with a three-semester-credit class, regardless of the number of credits awarded for the experience or the mode of delivery.

The school identifies at least one required assessment activity for each of the following foundational public health learning objectives.

Profession & Science of Public Health

1. Explain public health history, philosophy and values
2. Identify the core functions of public health and the 10 Essential Services
3. Explain the role of quantitative and qualitative methods and sciences in describing and assessing a population's health
4. List major causes and trends of morbidity and mortality in the US or other community relevant to the school or program
5. Discuss the science of primary, secondary and tertiary prevention in population health, including health promotion, screening, etc.
6. Explain the critical importance of evidence in advancing public health knowledge

Factors Related to Human Health

7. Explain effects of environmental factors on a population's health
8. Explain biological and genetic factors that affect a population's health
9. Explain behavioral and psychological factors that affect a population's health
10. Explain the social, political and economic determinants of health and how they contribute to population health and health inequities
11. Explain how globalization affects global burdens of disease
12. Explain an ecological perspective on the connections among human health, animal health and ecosystem health (eg, One Health)

Required documentation:

- 1) Provide a matrix that indicates the required assessment opportunities for each of the defined foundational public health learning objectives (1-12). (self-study document)
 - 2) Briefly explain how the school ensures that the instruction and assessment in introductory public health knowledge is generally equivalent to the instruction and assessment typically associated with a three-semester-credit course. (self-study document)
 - 3) Include the most recent syllabus for any course listed in the documentation requests above. (electronic resource file)
 - 4) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)
-

This criterion is not applicable.

D20. Distance Education

A degree program offered via distance education is a curriculum or course of study designated to be accessed remotely via various technologies, including internet-based course management systems, audio or web-based conferencing, video, chat or other modes of delivery. All methods support regular and substantive interaction between and among students and the instructor either synchronously and/or asynchronously and are a) consistent with the mission of the school and within the school's established areas of expertise; b) guided by clearly articulated student learning outcomes that are rigorously evaluated; c) subject to the same quality control processes that other degree programs in the university are; and d) providing planned and evaluated learning experiences that take into consideration and are responsive to the characteristics and needs of online learners.

The university provides needed support for the program, including administrative, communication, information technology and student services.

There is an ongoing effort to evaluate the academic effectiveness of the format, to assess learning methods and to systematically use this information to stimulate program improvements. Evaluation of student outcomes and of the learning model are especially important in institutions that offer distance learning but do not offer a comparable in-residence program.

The school has processes in place through which it establishes that the student who registers in a distance education course or degree is the same student who participates in and completes the course or degree and receives the academic credit. Student identity may be verified by using, at the option of the institution, methods such as a secure login and passcode; proctored examinations; and new or other technologies and practices that are effective in verifying student identity. The university notifies students in writing that it uses processes that protect student privacy and alerts students to any projected additional student charges associated with the verification of student identity at the time of registration or enrollment.

Required documentation:

- 1) Identify all public health distance education degree programs and/or concentrations that offer a curriculum or course of study that can be obtained via distance education. (self-study document)
- 2) Describe the public health distance education programs, including a) an explanation of the model or methods used, b) the school's rationale for offering these programs, c) the manner in which it provides necessary administrative, information technology and student support services, d) the manner in which it monitors the academic rigor of the programs and their equivalence (or comparability) to other degree programs offered by the university, and e) the manner in which it evaluates the educational outcomes, as well as the format and methods. (self-study document)
- 3) Describe the processes that the university uses to verify that the student who registers in a distance education course (as part of a distance-based degree) or a fully distance-based degree is the same student who participates in and completes the course or degree and receives the academic credit. (self-study document)
- 4) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area.

(self-study document)

This criterion is not applicable.

E1. Faculty Alignment with Degrees Offered

Faculty teach and supervise students in areas of knowledge with which they are thoroughly familiar and qualified by the totality of their education and experience. Faculty education and experience is appropriate for the degree level (bachelor's, master's, doctoral) and the nature of the degree (research, professional practice, etc.) with which they are associated.

Education refers to faculty members' degrees, certifications, fellowships, post-doctoral training, formal coursework completed, etc.

Experience refers to a range of activities including substantial employment or involvement in public health activities outside of academia. Experience also refers to the depth of service provided to professional and community-based public health organizations and to peer-reviewed scholarship in a discipline. Finally, experience relates to the individual's record of excellence in providing instruction in a discipline.

1) Provide a table showing the school's primary instructional faculty. The table presents data effective at the beginning of the academic year in which the final self-study is submitted to CEPH and must be updated at the beginning of the site visit if any changes have occurred since final self-study submission. The identification of instructional areas must correspond to the data presented in Criterion C2. Schools should only include data on faculty associated with public health degrees. (self-study document)

The school's primary instructional faculty are listed on Table E1.1.1. All faculty listed are primary faculty at SPH and, like all schools on the Medical Campus, SPH does not have tenure.

Table E1.1.1. Primary Instructional Faculty Alignment with Degrees Offered

Last	First	Title/ Academic Rank	Graduate Degrees Earned	Institution(s) from which degree(s) were earned	Discipline in which degrees were earned	Current instructional area(s)
Annas	George	William Fairfield Warren Distinguished Professor of Health Law, Ethics, and Human Rights	MPH JD	Harvard University Harvard University	Public Health Law	Health Policy and Law (MPH) Healthcare Management (MPH)
Aschengrau	Ann	Professor of Epidemiology	MS ScD	Harvard University Harvard University	Epidemiology Epidemiology	Epidemiology (MS, PhD)
Bazzi	Angela	Assistant Professor of Community Health Sciences	MPH PhD	John Hopkins University University of California at San Diego	Public Health Public Health	Community Assessment, Program Design, Implementation, and Evaluation (MPH) Health Communication and Promotion (MPH)
Beard	Jennifer	Clinical Associate Professor of Global Health	MA PhD MPH	Ohio University University of New Hampshire Boston University	English Literature English Literature Public Health	Program Management (MPH)
Beiser	Alexa	Professor of Biostatistics	MA PhD	University of California at San Diego Boston University	Applied Mathematics Mathematics	Biostatistics (MA, MS, PhD) Design and Conduct of Public Health Research (MPH)
Belanoff	Candice	Clinical Assistant Professor of Community Health Sciences	MPH ScD	Hunter College Harvard University	Public Health Social and Behavioral Sciences	Community Assessment, Program Design, Implementation, and Evaluation (MPH)
Boehmer	Ulrike	Associate Professor of Community Health Sciences	MA PhD	Boston College Boston College	Sociology Sociology	Community Assessment, Program Design, Implementation, and Evaluation (MPH)
Bonawitz	Rachael	Assistant Professor of Global Health	MD	University of Pennsylvania	Medicine	Program Management (MPH)

Last	First	Title/ Academic Rank	Graduate Degrees Earned	Institution(s) from which degree(s) were earned	Discipline in which degrees were earned	Current instructional area(s)
Bor	Jacob	Assistant Professor of Global Health	SM/ScM ScD	Harvard University Harvard University	Economics Global Health Management	Monitoring and Evaluation (MPH) Program Management (MPH)
Brennan	Alana	Instructor of Global Health	MPH PhD	Boston University Boston University	Epidemiology Epidemiology	Epidemiology and Biostatistics (MPH)
Brooks	Daniel	Associate Professor of Epidemiology	MPH DSc	Boston University Boston University	Epidemiology Epidemiology	Epidemiology (MS, PhD)
Cabral	Howard	Professor of Biostatistics	MPH	Boston University	Epidemiology	Design and Conduct of Public Health Research (MPH)
			PhD	Boston University	Biostatistics	Epidemiology and Biostatistics (MPH)
Carey	Kathleen	Professor of Health Law, Policy & Management	MAT	Harvard University	N/A	Health Services Research (MS, PhD)
			PhD	Boston University	Economics	Health Policy and Law (MPH)
Cheng	Debbie	Professor of Biostatistics	ScD	Harvard University	Biostatistics	Biostatistics (MA, MS, PhD)
Claus Henn	Birgit	Assistant Professor of Environmental Health	MPH	University of California Berkeley	Environmental Health	Environmental Health (MS, PhD)
			ScD	Harvard University	Epidemiology	Environmental Hazard Assessment (MPH)
Cole Brahim	Megan	Assistant Professor of Health Law, Policy & Management	MPH	Yale University	Health Administration	Health Services Research (MS, PhD)
			PhD	Brown University	Health Services Research	Health Policy and Law (MPH)
Cox	Harold	Associate Professor of Community Health Sciences	MSSW	University of Texas at Austin	Social Work	Leadership, Management, and Policy (DrPH)
Cozier	Yvette	Associate Professor of Epidemiology	MPH	Boston University	Epidemiology	Public Health Practice (Executive MPH)
			DSc	Boston University	Epidemiology	Epidemiology (MS, PhD)

Last	First	Title/ Academic Rank	Graduate Degrees Earned	Institution(s) from which degree(s) were earned	Discipline in which degrees were earned	Current instructional area(s)
Declercq	Eugene	Professor of Community Health Sciences	MBA MS PhD	University of Massachusetts at Amherst Florida State University- Miami Florida State University- Miami	Business Administration Political Science Political Science	Leadership, Management, and Policy (DrPH) Community Assessment, Program Design, Implementation, and Evaluation (MPH)
DeJong	William	Professor of Community Health Sciences	MA PhD	Stanford University Stanford University	Social Psychology Social Psychology	Health Communication and Promotion (MPH)
Demissie	Serkalem	Associate Professor of Biostatistics	MPH PhD	Boston University Boston University	Epidemiology Biostatistics	Biostatistics (MA, MS, PhD)
DeStefano	Anita	Professor of Biostatistics	MS PhD	Virginia Polytechnical Institute Cornell University	Dairy Science Animal Science/Biometry & Genetics	Epidemiology and Biostatistics (MPH)
Dolan	Carol	Clinical Associate Professor of Community Health Sciences	MA PhD MA	University of North Carolina University of North Carolina Bowie State College	Psychology Psychology Psychology	Health Communication and Promotion (MPH) Community Assessment, Program Design, Implementation, and Evaluation (MPH)
Doros	Gheorghe	Professor of Biostatistics	MS MA PhD	University of Bucharest Yale University Yale University	Statistics Statistics Statistics	Biostatistics (MA, MS, PhD) Epidemiology and Biostatistics (MPH)
Drainoni	Mari-Lynn	Associate Professor of Health Law, Policy & Management	MEd PhD	University of Massachusetts at Boston Northeastern University	Psychology Law	Health Services Research (MS, PhD) Healthcare Management (MPH)
Dupuis	Josée	Professor of Biostatistics	MS PhD	Stanford University Stanford University	Statistics Statistics	Biostatistics (MA, MS, PhD)
Elliott	Patricia	Clinical Assistant Professor of Community Health Sciences	MPH DrPH	Boston University Boston University	Social & Behavioral Sciences Maternal & Child Health	Health Communication and Promotion (MPH) Leadership, Management, and Policy (DrPH)

Last	First	Title/ Academic Rank	Graduate Degrees Earned	Institution(s) from which degree(s) were earned	Discipline in which degrees were earned	Current instructional area(s)
Fidler	Anne	Associate Professor of Environmental Health	MS ScD	Harvard University Harvard University	Occupational Health and Safety Environmental Science	Environmental Health (MS, PhD) Environmental Hazard Assessment (MPH)
Fox	Matthew	Professor of Epidemiology	MPH DSc	Boston University Boston University	Epidemiology Epidemiology	Epidemiology (MS, PhD) Epidemiology and Biostatistics (MPH)
Gagnon	David	Research Professor of Biostatistics	MD MPH PhD	Tufts University Boston University Boston University	Medicine Epidemiology Biostatistics	Biostatistics (MA, MS, PhD) Epidemiology and Biostatistics (MPH)
Galea	Sandro	Dean, Robert A. Knox Professor	MD MPH DPH	University of Toronto Harvard University Columbia University	Medicine Epidemiology Epidemiology	Epidemiology (MS, PhD)
Garvin	Lynn	Clinical Assistant Professor of Health Law, Policy & Management	MBA PhD	Harvard University Brandeis University	Management Studies Health Policy Management	Healthcare Management (MPH) Health Services Research (MS, PhD)
Gill	Christopher	Associate Professor of Global Health	MD MS	University of Massachusetts Tufts University	Medicine Biomedical Studies	Leadership, Management, and Policy (DrPH) Program Management (MPH)
Godley	Sophie	Clinical Assistant Professor of Community Health Sciences	MPH DrPH	University of Washington Boston University	Social & Behavioral Sciences Public Health	Community Assessment, Program Design, Implementation, and Evaluation (MPH) Public Health Practice (Executive MPH)
Greece	Jacey	Clinical Assistant Professor of Community Health Sciences	MPH DSc	Boston University Boston University	Social & Behavioral Sciences Epidemiology	Public Health Practice (Executive MPH) Health Communication and Promotion (MPH)
Grodin	Michael	Professor of Health Law, Ethics, and Human Rights	MD	Albert Einstein College of Medicine	Medicine	Health Policy and Law (MPH) Healthcare Management (MPH)

Last	First	Title/ Academic Rank	Graduate Degrees Earned	Institution(s) from which degree(s) were earned	Discipline in which degrees were earned	Current instructional area(s)
Halim	Nafisa	Research Assistant Professor of Global Health	MA MA PhD	University of New Mexico University of New Mexico University of New Mexico	Economics Sociology Sociology	Leadership, Management, and Policy (DrPH) Public Health Practice (Executive MPH)
Hamer	Davidson	Professor of Global Health	MD	University of Vermont College of Medicine	Medicine	Monitoring and Evaluation (MPH)
Harlow	Bernard	Professor of Epidemiology	MPH PhD	University of Minnesota University of Washington	Epidemiology Epidemiology	Epidemiology (MS, PhD) Epidemiology and Biostatistics (MPH)
Healey	Megan	Clinical Assistant Professor of Epidemiology	PhD MPH	Johns Hopkins University Harvard University	Molecular Medicine Public Health Quantitative Methods	Public Health Practice (Executive MPH) Epidemiology and Biostatistics (MPH)
Heeren	Timothy	Professor of Biostatistics	PhD	Boston University	Statistics	Design and Conduct of Public Health Research (MPH)
Heiger-Bernays	Wendy	Clinical Professor of Environmental Health	PhD	University of Nebraska	Biochemistry	Environmental Hazard Assessment (MPH) Environmental Health (MS, PhD)
Hibberd	Patricia	Professor of Global Health	PhD MD	Leicester University Harvard University	Medicine Epidemiology	Program Management (MPH)
Hicks	Jacqueline	Clinical Assistant Professor of Biostatistics	MS PhD	George Washington University Boston University	Biostatistics Biostatistics	Epidemiology and Biostatistics (MPH) Design and Conduct of Public Health Research (MPH)
Horsburgh	Charles	Professor of Epidemiology	MS MD	Yale University Case Western reserve University	Urban Studies Medicine	Epidemiology (MS, PhD) Epidemiology and Biostatistics (MPH)
Huberfeld	Nicole	Professor of Health Law, Policy, and Management	JD	Seton Hall University	Law	Health Policy and Law (MPH)

Last	First	Title/ Academic Rank	Graduate Degrees Earned	Institution(s) from which degree(s) were earned	Discipline in which degrees were earned	Current instructional area(s)
Janulewicz	Patricia	Assistant Professor of Environmental Health	MPH DSc	Boston University Boston University	Environmental Health Environmental Health	Environmental Health (MS, PhD) Environmental Hazard Assessment (MPH)
Jenkins	Helen	Assistant Professor of Biostatistics	MSc PhD	London School of Hygiene and Tropical Medicine Imperial College of Science, Technology	Medical Sciences Infectious Disease Epidemiology	Biostatistics (MA, MS, PhD) Epidemiology and Biostatistics (MPH)
Jones	David	Assistant Professor of Health Law, Policy & Management	MSPH MA PhD	University of North Carolina University of Michigan at Ann Arbor University of Michigan at Ann Arbor	Public Health Political Science Health Services, Organizations, and Policy	Health Policy and Law (MPH) Health Services Research (MS, PhD)
Kazis	Lewis	Professor of Health Law, Policy & Management	SM/ScM ScD	Harvard University Harvard University	Population Sciences Health Administration/Education	Health Services Research (MS, PhD) Healthcare Management (MPH)
Kelleher	Samantha	Assistant Professor of Epidemiology	MS PhD	Emory University Boston University	Public Health Epidemiology	Epidemiology (MS, PhD) Epidemiology and Biostatistics (MPH)
Kim	Chanmin	Assistant Professor of Biostatistics	MA PhD	Columbia University University of Florida	Statistics Statistics	Biostatistics (MA, MS, PhD) Epidemiology and Biostatistics (MPH)
Kinney	Patrick	Professor of Environmental Health	MS ScD	Harvard University Harvard University	Environmental Health Environmental Health	Environmental Health (MS, PhD)
Lane	Kevin	Assistant Professor of Environmental Health	MA PhD	Tufts University Boston University	Urban Studies Environmental Health	Environmental Health (MS, PhD)
Larson	Martin	Research Professor of Biostatistics	SM/ScM ScD	Harvard University Harvard University	Biostatistics Biostatistics	Biostatistics (MA, MS, PhD)
Larson	Bruce	Research Professor of Global Health	MA PhD	University of Wisconsin - Madison University of Wisconsin - Madison	Economics Economics	Leadership, Management, and Policy (DrPH)

Last	First	Title/ Academic Rank	Graduate Degrees Earned	Institution(s) from which degree(s) were earned	Discipline in which degrees were earned	Current instructional area(s)
LaValley	Michael	Professor of Biostatistics	MS PhD	The Ohio State University Pennsylvania State University	Mathematics Statistics	Epidemiology and Biostatistics (MPH) Design and Conduct of Public Health Research (MPH)
Leibler	Jessica	Assistant Professor of Environmental Health	MS DrPH	Harvard University Johns Hopkins University	Health Policy Management Environmental Health	Public Health Nutrition (MS) Environmental Hazard Assessment (MPH)
Levy	Jonathan	Professor of Environmental Health	ScD	Harvard University	Environmental Health	Environmental Health (MS, PhD) Environmental Hazard Assessment (MPH)
Liu	Chunyu	Research Associate Professor of Biostatistics	PhD MA PhD	University of Maine - Orono Boston University Boston University	Biochemistry Biostatistics Biostatistics	Biostatistics (MA, MS, PhD) Epidemiology and Biostatistics (MPH)
Liu	Ching-Ti	Associate Professor of Biostatistics	MS MS PhD	National Central University University of California at Los Angeles University of California at Los Angeles	Statistics Statistics Statistics	Biostatistics (MA, MS, PhD) Epidemiology and Biostatistics (MPH)
Lodi	Sara	Assistant Professor of Biostatistics	MSc PhD	University of Southampton London School of Hygiene & Tropical Medicine	Statistics Statistics	Biostatistics (MA, MS, PhD) Epidemiology and Biostatistics (MPH)
Long	Lawrence	Research Assistant Professor of Global Health	MCom PhD	University of the Witwatersrand University of the Witwatersrand	Economics Economics	Monitoring and Evaluation (MPH) Program Management (MPH)
Louis	Christopher	Assistant Professor of Health Law, Policy & Management	MHA PhD	University of Florida Pennsylvania State University	Health Policy Management Health Policy Management	Healthcare Management (MPH)

Last	First	Title/ Academic Rank	Graduate Degrees Earned	Institution(s) from which degree(s) were earned	Discipline in which degrees were earned	Current instructional area(s)
Lunetta	Kathryn	Professor of Biostatistics	MS PhD	University of Michigan at Ann Arbor University of Michigan at Ann Arbor	Biostatistics Biostatistics	Biostatistics (MA, MS, PhD) Epidemiology and Biostatistics (MPH)
MacLeod	William	Assistant Professor of Global Health	ScM ScD	Harvard University Harvard University	Population Sciences Epidemiology	Monitoring and Evaluation (MPH) Program Management (MPH)
MacVarish	Kathleen	Associate Professor of the Practice of Environmental Health	MS	University of Massachusetts	Environmental Studies	Environmental Health (MS, PhD) Environmental Hazard Assessment (MPH)
Mariner	Wendy	Edward R. Utley Professor of Health Law, Bioethics & Human Rights	LLM MPH JD	New York University Harvard University Columbia University	Taxation Public Health Law	Health Policy and Law (MPH) Health Services Research (MS, PhD)
McClellan	Michael	Professor of Environmental Health	MS ScD	Harvard University Harvard University	Occupational Health and Safety Environmental Health	Environmental Health (MS, PhD)
McCloskey	Lois	Associate Professor of Community Health Sciences	MPH DrPH	University of California at Los Angeles University of California at Los Angeles	Population/Family Health Science International Health	Community Assessment, Program Design, Implementation, and Evaluation (MPH)
Merrigan	Daniel	Associate Professor of Community Health Sciences	MEd EdD MDiv MPH ThM	North Adams State College Boston University Weston University Boston University Weston University	Psychology Public Health – Education Theology Public Health Anthropology	Community Assessment, Program Design, Implementation, and Evaluation (MPH)
Messersmith	Lisa	Associate Professor of Global Health	MPH PhD	Johns Hopkins University University of California at Los Angeles	Public Health Anthropology	Leadership, Management, and Policy (DrPH) Program Management (MPH)

Last	First	Title/ Academic Rank	Graduate Degrees Earned	Institution(s) from which degree(s) were earned	Discipline in which degrees were earned	Current instructional area(s)
Nelson	Kerrie	Research Associate Professor of Biostatistics	MSc PhD	University of Washington University of Washington	Statistics Statistics	Epidemiology and Biostatistics (MPH)
Ni	Pengsheng	Research Associate Professor of Health Law, Policy & Management	MPH MD	Shanghai Medical University Shanghai Medical University	Biostatistics Medicine	Health Services Research (MS, PhD)
Onyango	Monica	Clinical Assistant Professor of Global Health	RN MPH MS PhD	Kenya Medical Training College Boston University Boston College Boston College	Nursing International Health Nursing Nursing	Program Management (MPH) Public Health Practice (Executive MPH)
Peloso	Gina	Assistant Professor of Biostatistics	MA PhD	Boston University Boston University	Biostatistics Biostatistics	Design and Conduct of Public Health Research (MPH) Epidemiology and Biostatistics (MPH)
Peters	Junenette	Assistant Professor of Environmental Health	MA MA ScD	Boston University Boston University Harvard University	Geology Environmental Studies Environmental Health	Environmental Health (MS, PhD) Public Health Nutrition (MS)
Pizer	Steven	Research Associate Professor of Health Law Policy & Management	PhD	Boston College	Economics	Health Services Research (MS, PhD)
Preis	Sarah	Research Associate Professor of Biostatistics	ScD MPH	Harvard University Emory University	Epidemiology Epidemiology	Epidemiology and Biostatistics (MPH)
Raifman	Julia	Assistant Professor of Health Law, Policy & Management	MSc ScD	Harvard University Harvard University	Global Health and Population Global Health and Population	Health Services Research (MS, PhD) Health Policy and Law (MPH)
Rider	Jennifer	Assistant Professor of Epidemiology	MPH ScD	University of Massachusetts Amherst Harvard University	Public Health Epidemiology	Public Health Practice (Executive MPH)

Last	First	Title/ Academic Rank	Graduate Degrees Earned	Institution(s) from which degree(s) were earned	Discipline in which degrees were earned	Current instructional area(s)
Rockers	Peter	Assistant Professor of Global Health	MPH DSc	University of Michigan at Ann Arbor Harvard University	Epidemiology Global Health Management	Monitoring and Evaluation (MPH) Program Management (MPH)
Rosen	Sydney	Research Professor of Global Health	MPA	Harvard University	Economics	Program Management (MPH)
Rosenbloom	David	Professor of Health Law, Policy & Management	PhD	Massachusetts Institute of Technology	Political Science	Healthcare Management (MPH) Health Services Research (MS, PhD)
Ross	Craig	Research Assistant Professor of Epidemiology	MBA PhD	Northeastern University Boston University	Finance Epidemiology	Epidemiology and Biostatistics (MPH)
Rothman	Emily	Associate Professor of Community Health Sciences	MS MS ScD	Harvard University Harvard University Harvard University	Maternal & Child Health Social & Behavioral Sciences Social & Behavioral Sciences	Public Health Practice (Executive MPH)
Rudolph	Abby	Assistant Professor of Epidemiology	MPH PhD	Columbia University Johns Hopkins University	Epidemiology Epidemiology	Epidemiology (MS, PhD) Epidemiology and Biostatistics (MPH)
Ryan	Kathleen	Lecturer of Health Law, Policy & Management	MPH PhD	Boston University Boston University	Public Health Health Services Research	Health Services Research (MS, PhD) Healthcare Management (MPH)
Sabin	Lora	Associate Professor of Global Health	MA PhD	Harvard University Harvard University	East Asian Studies Political Economy	Leadership, Management, and Policy (DrPH) Program Management (MPH)
Sager	Alan	Professor of Health Law, Policy & Management	MEd PhD	University of Miami Massachusetts Institute of Technology	Education Urban Studies	Health Policy and Law (MPH)
Saitz	Richard	Professor of Community Health Sciences	MD MPH	Boston University Harvard University	Medicine Quantitative Methods	Health Communication and Promotion (MPH)

Last	First	Title/ Academic Rank	Graduate Degrees Earned	Institution(s) from which degree(s) were earned	Discipline in which degrees were earned	Current instructional area(s)
Scammell	Madeleine	Associate Professor of Environmental Health	DSc	Boston University	Environmental Health	Public Health Nutrition (MS) Environmental Health (MS, PhD)
Schlezingner	Jennifer	Associate Professor of Environmental Health	PhD	Massachusetts Institute of Technology	Oceanography	Environmental Health (MS, PhD)
Scott	Nancy	Assistant Professor of Global Health	MPH DPH/DrPH	Boston University Boston University	International Health International Health	Monitoring and Evaluation (MPH) Program Management (MPH)
Sebastiani	Paola	Professor of Biostatistics	MSc PhD	University College London University of Rome	Applied Stochastic Systems Statistics	Biostatistics (MA, MS, PhD)
Shea	Kimberly	Assistant Professor of Epidemiology	MPH PhD	Boston University Boston University	Epidemiology Epidemiology	Epidemiology (MS, PhD) Public Health Nutrition (MPH)
Sheldrick	Radley	Research Associate Professor of Health Law, Policy & Management	MA PhD	Temple University Temple University	Clinical/Counseling Psychology Clinical/Counseling Psychology	Health Services Research (MS, PhD)
Sherr	David	Professor of Environmental Health	PhD	Cornell University	Microbiology	Environmental Health (MS, PhD)
Siegel	Michael	Professor of Community Health Sciences	MD MPH	Yale University University of California at Berkeley	Medicine Epidemiology	Health Communication and Promotion (MPH)
Slavin	Mary	Research Assistant Professor of Health Law, Policy & Management	PhD MS	Clark University Boston University	Experimental Psychology Physical Therapy	Health Services Research (MS, PhD)
Stein	Michael	Professor of Health Law, Policy & Management	MD	Columbia University	Medicine	Health Services Research (MS, PhD)

Last	First	Title/ Academic Rank	Graduate Degrees Earned	Institution(s) from which degree(s) were earned	Discipline in which degrees were earned	Current instructional area(s)
Stokes	Andrew	Assistant Professor of Global Health	MA PhD	University of Pennsylvania University of Pennsylvania	Population Sciences Sociology	Monitoring and Evaluation (MPH) Program Management (MPH)
Sullivan	Kimberly	Research Assistant Professor of Environmental Health	PhD	Boston University	Neuroscience/Neurology	Environmental Hazard Assessment (MPH)
Sullivan	Lisa	Professor of Biostatistics	MA PhD	Boston University Boston University	Statistics Statistics	Epidemiology and Biostatistics (MPH)
Thea	Donald	Professor of Global Health	MD MSc	Columbia University University of London	Medicine Tropical Medicine	Leadership, Management, and Policy (DrPH)
Trinquart	Ludovic	Assistant Professor of Biostatistics	MPH PhD	University of Paris Universite Rene Descartes Paris V	Biostatistics Public Health	Biostatistics (MA, MS, PhD) Epidemiology and Biostatistics(MPH)
Tripodis	Georgios	Research Associate Professor of Biostatistics	MPhil MSc PhD	University of Cambridge London School of Economic and Political Science London School of Economic and Political Science	Economics Statistics Statistics	Biostatistics (MA, MS, PhD) Design and Conduct of Public Health Research (MPH)
Ulrich	Michael	Assistant Professor of Health Law, Ethics, and Human Rights	JD MPH	University of Maryland Harvard University	Law Public Health	Health Policy and Law (MPH)
van Seventer	Jean	Clinical Associate Professor of Environmental Health	VMD	University of Pennsylvania	Veterinary Science	Environmental Hazard Assessment (MPH) Environmental Health (MS, PhD)
Vian	Taryn	Clinical Professor of Global Health	MSc PhD	Harvard University Boston University	Health Policy Management Global Health Management	Program Management (MPH) Monitoring and Evaluation (MPH)
Wang	Catharine	Associate Professor of Community Health Sciences	MSc PhD	University Waterloo University of Michigan at Ann Arbor	Social & Behavioral Sciences Social & Behavioral Sciences	Community Assessment, Program Design, Implementation, and Evaluation (MPH)

Last	First	Title/ Academic Rank	Graduate Degrees Earned	Institution(s) from which degree(s) were earned	Discipline in which degrees were earned	Current instructional area(s)
Wang	Monica	Assistant Professor of Community Health Sciences	MS ScD	Harvard University Harvard University	Social & Behavioral Sciences Social & Behavioral Sciences	Public Health Nutrition (MS) Health Communication and Promotion (MPH)
Webster	Thomas	Professor of Environmental Health	DSc	Boston University	Environmental Health	Environmental Hazard Assessment (MPH) Environmental Health (MS, PhD)
Werler	Martha	Professor of Epidemiology	MPH DSc	University of Michigan at Ann Arbor Boston University	Epidemiology Epidemiology	Epidemiology (MS, PhD)
Weuve	Jennifer	Associate Professor of Epidemiology	MPH ScD	University of Minnesota Harvard University	Epidemiology Epidemiology	Epidemiology (MS, PhD) Epidemiology and Biostatistics (MPH)
White	Roberta	Professor of Environmental Health	MA PhD	Wayne State University Wayne State University	Clinical Psychology Clinical Psychology	Environmental Health (MS, PhD) Environmental Hazard Assessment (MPH)
Wirtz	Veronika	Associate Professor of Global Health	MSc PhD	University of London University of London	Clinical Pharmacy Pharmaceutical Policy	Leadership, Management, and Policy (DrPH) Monitoring and Evaluation (MPH)
Wise	Lauren	Professor of Epidemiology	ScM ScD	Harvard University Harvard University	Epidemiology Epidemiology	Epidemiology (MS, PhD) Epidemiology and Biostatistics (MPH)
Xuan	Ziming	Associate Professor of Community Health Sciences	MA ScM ScD	University of Connecticut Harvard University Harvard University	Communication Sciences Biostatistics Social & Behavioral Sciences	Health Communication and Promotion (MPH)
Yang	Qiong	Associate Professor of Biostatistics	MA PhD	Columbia University Columbia University	Statistics Statistics	Biostatistics (MA, MS, PhD)

2) Provide summary data on the qualifications of any other faculty with significant involvement in the school's public health instruction. Schools define "significant" in their own contexts but, at a minimum, include any individuals who regularly provide instruction or supervision for required courses and other experiences listed in the criterion on Curriculum. Reporting on individuals who supervise individual students' practice experience (preceptors, etc.) is not required. The identification of instructional areas must correspond to the data presented in Criterion C2. (self-study document)

Table E1.2.1. Non-Primary Instructional Faculty Regularly Involved in Instruction

Last	First	Title/ Academic Rank	Graduate Degrees Earned	Institution(s) from which degree(s) were earned	Discipline in which degrees were earned	Current instructional area(s)
Akram	Susan	Clinical Associate Professor of Health Law, Policy & Management	JD	Georgetown University	Law	Health Policy and Law (MPH)
Al-farsi	Yahya	Adjunct Assistant Professor of Epidemiology	MD MPH DSc	Sultan Qaboos University Boston University Boston University	Medicine Epidemiology Epidemiology	Epidemiology (MS, PhD)
Allen	Deborah	Adjunct Associate Professor of Community Health Sciences	MS MS ScD	Harvard University Harvard University Harvard University	Health Policy Management Maternal & Child Health Maternal & Child Health	Community Assessment, Program Design, Implementation, and Evaluation (MPH)
Arnold	Marilyn	Adjunct Lecturer of Community Health Sciences	MPH MS	Boston University Harvard University	Public Health Social & Behavioral Sciences	Public Health Practice (Executive MPH)
Au	Rhoda	Professor of Epidemiology	PhD MBA	University of California at Riverside Boston University	Psychology Policy Analysis and Management	Epidemiology and Biostatistics (MPH)
Bachman	Sara	Research Professor of Health Law, Policy & Management	MS PhD	University of Massachusetts at Amherst Brandeis University	Epidemiology Social Welfare Policy	Health Services Research (MS, PhD)

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Balsam	Alan	Adjunct Associate Professor of Community Health Sciences	MS MPH PhD	Framingham State College Boston University Tufts University	Nutrition/Food Science Public Health Nutrition/Food Science	Health Communication and Promotion (MPH)
Battaglia	Tracy	Associate Professor of Epidemiology	MD MPH	Boston University Boston University	Medicine Public Health	Public Health Practice (MPH)
Bean	Jonathan	Adjunct Associate Professor of Health Law, Policy and Management	MD MS MPH	State University of New York at Buffalo Boston University Harvard University	Medicine N/A Public Health	Health Services Research (MS, PhD)
Benjamin	Emelia	Professor of Epidemiology	MD SM/ScM	Case Western Reserve University Harvard University	Medicine Epidemiology	Epidemiology (MS, PhD)
Benson	Eugene	Adjunct Clinical Assistant Professor of Environmental Health	JD	Georgetown University	Law	Public Health Nutrition (MS)
Bernstein	Edward	Professor of Community Health Sciences	MD	Stanford University	Medicine	Leadership, Management, and Policy (DrPH)
Bernstein	Judith	Professor of Community Health Sciences	MSN PhD	University of New Mexico Brandeis University	Nursing Health Policy and Management	Community Assessment, Program Design, Implementation, and Evaluation (MPH)
Bhutta	Zulfiqar	Adjunct Professor of Global Health	MBBS PhD	Khyber Medical College Karolinska Institute	N/A	Monitoring and Evaluation (MPH)
Biemba	Godfrey	Adjunct Research Assistant Professor of Global Health	MBBCh MPH	University of Zambia London School of Hygiene & Tropical Medicine	N/A	Monitoring and Evaluation (MPH)
Boden	Leslie	Professor of Environmental Health	PhD	Massachusetts Institute of Technology	Economics	Environmental Health (MS, PhD)

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Bosco	Jaclyn	Adjunct Assistant Professor of Epidemiology	MPH PhD	Boston University Boston University	Epidemiology Epidemiology	Epidemiology (MS, PhD)
Bragar	Joan	Adjunct Clinical Associate Professor of Community Health Sciences	MAEd EdD	Harvard University Harvard University	Education Education	Leadership, Management, and Policy (DrPH)
Brogly	Susan	Adjunct Assistant Professor of Epidemiology	MSc PhD	McGill University McGill University	Epidemiology Epidemiology	Epidemiology (MS, PhD)
Buring	Julie	Adjunct Professor of Epidemiology	MS ScD	University Washington Harvard University	Biostatistics Epidemiology	Epidemiology (MS, PhD)
Cahill	Sean	Adjunct Associate Professor of the Practice of Health Law, Policy and Management	MA PhD	University of Michigan at Ann Arbor University of Michigan at Ann Arbor	Political Science Political Science	Health Policy and Law (MPH)
Chang	Mark	Adjunct Professor of Biostatistics	PhD MS	University of Massachusetts at Amherst University of Massachusetts at Amherst	Civil Engineering Biostatistics	Biostatistics (MA, MS, PhD)
Charns	Martin	Professor of Health Law, Policy & Management	MBA DBA	Harvard University Harvard University	Business Administration Business Administration	Healthcare Management (MPH)
Chibnik	Lori	Adjunct Assistant Professor of Biostatistics	MPH PhD	Boston University Boston University	Epidemiology Biostatistics	Epidemiology and Biostatistics (MPH)

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Clark	Jack	Professor of Health Law, Policy & Management	PhD	University of Colorado at Boulder	Sociology	Health Services Research (MS, PhD)
Clarke	Roberta	Associate Professor of Health Law, Policy & Management	MBA DBA	Harvard University Harvard University	Business Administration-Marketing Business Administration-Marketing	Healthcare Management (MPH)
Cocoros	Noelle	Adjunct Assistant Professor of Epidemiology	MPH DSc	Boston University Boston University	Epidemiology Epidemiology	Epidemiology (MS, PhD)
Cohen	Aaron	Adjunct Assistant Professor of Environmental Health	MPH DSc	Boston University Boston University	Public Health Epidemiology	Environmental Hazard Assessment (MPH)
Cohen	Alan	Professor of Health Law, Policy & Management	MS ScD	Harvard University Harvard University	Health Policy Management Health Administration	Health Services Research (MS, PhD)
Collins	David	Adjunct Associate Professor of Global Health	MA	University of East Anglia	Rural Development	Program Management (MPH)
Corwin	Michael	Associate Professor of Epidemiology	MD	Wayne State University	Medicine	Epidemiology (MS, PhD)
Cotton	Deborah	Professor of Epidemiology	MD MPH	Boston University Johns Hopkins University	Medicine Public Health	Epidemiology and Biostatistics (MPH)
Crosby	Sondra	Associate Professor of Health Law, Policy & Management	PharmD MD	University Washington University Washington	Pharmacy Medicine	Health Services Research (MS, PhD)
Cupples	L Adrienne	Professor of Biostatistics	MA PhD	Boston University Boston University	Statistics Statistics	Biostatistics (MA, MS, PhD)
D'Agostino	Ralph	Professor of Biostatistics	MA PhD	Boston University Harvard University	Mathematics Mathematical Statistics	Biostatistics (MA, MS, PhD)

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Deane	Sally	Adjunct Clinical Assistant Professor of Health Law, Policy & Management	MEd MPH	Boston University Boston University	Education Health Administration/Education	Healthcare Management (MPH)
Densberger	Joan	Adjunct Associate Professor of Health Law, Policy & Management	MPH JD	Boston University Boston College	Public Health Law	Health Policy and Law (MPH)
Djousse	Luc	Adjunct Assistant Professor of Epidemiology	MD MPH DSc	Saarland University Boston University Boston University	Medicine Public Health Epidemiology	Epidemiology and Biostatistics (MPH)
Dodson	Robin	Adjunct Assistant Professor of Environmental Health	MS ScD	Harvard University Harvard University	Environmental Science Environmental Health	Environmental Hazard Assessment (MPH)
Dorfman	David	Associate Professor of Community Health Sciences	MD	New York University School of Medicine	Medicine	Community Assessment, Program Design, Implementation, and Evaluation (MPH)
Duckworth	Ken	Adjunct Clinical Assistant Professor of Health Law, Policy & Management	MD	Temple University School of Medicine	Medicine	Healthcare Management (MPH)
Dukes	Kimberly	Adjunct Assistant Professor of Biostatistics	MA PhD	Boston University Boston University	Mathematics Mathematics	Biostatistics (MA, MS, PhD)
Elwy	Rani	Associate Professor of Health Law, Policy & Management	MS PhD	London School of Economics and Political Science King's College	Psychology Psychology	Healthcare Management (MPH)
Fabian	Patricia	Research Assistant Professor of Environmental Health	MS ScD	University of Colorado at Boulder Harvard University	Environmental Science Environmental Health	Environmental Health (MS, PhD) Environmental Hazard Assessment (MPH)
Farrer	Lindsay	Professor of Biostatistics	PhD	Indiana University School of Medicine	Genetics & Genomics	Biostatistics (MA, MS, PhD)
Feeley	Frank	Associate Professor of Global Health	JD	Yale University	Law	Leadership, Management, and Policy (DrPH)

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Feinberg	Emily	Associate Professor of Community Health Sciences	MSc MSN ScD	Harvard University Simmons College Harvard University	Maternal & Child Health Nursing Maternal & Child Health	Health Communication and Promotion (MPH)
Felson	David	Professor of Epidemiology	MD MPH	Johns Hopkins University Boston University	Medicine Public Health	Epidemiology (MS, PhD)
Fiore	Louis	Professor of Epidemiology	MD MPH	Suny Upstate Med Ctr Harvard University	Medicine Epidemiology	Epidemiology and Biostatistics (MPH)
Fish	Susan	Professor of Biostatistics	PharmD MPH	University of Minnesota Boston University	Pharmacy Epidemiology	Epidemiology and Biostatistics (MPH) Design and Conduct of Public Health Research (MPH)
Fitzgerald	Elaine	Adjunct Clinical Assistant Professor of Community Health Sciences	DPH/DrPH	Boston University	Maternal & Child Health	Health Communication and Promotion (MPH)
Foster	Susan	Professor of Global Health	MA PhD	Ohio University London School of Hygiene and Tropical Medicine	International Affairs N/A	Monitoring and Evaluation (MPH)
Fournier	Deborah	Clinical Associate Professor of Community Health Sciences	MS PhD	Syracuse University Syracuse University	Instructional Design Instructional Design	Community Assessment, Program Design, Implementation, and Evaluation (MPH)
Frank	Deborah	Assistant Professor of Community Health Sciences	MD	Harvard University	Medicine	Community Assessment, Program Design, Implementation, and Evaluation (MPH)

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Freedberg	Kenneth	Adjunct Associate Professor of Epidemiology	MD MSc	Harvard University Harvard University	Medicine Health Administration/ Education	Epidemiology (MS, PhD)
Fredman	Lisa	Professor of Epidemiology	MSPH PhD	University of North Carolina University of North Carolina	Epidemiology Epidemiology	Epidemiology (MS, PhD) Public Health Practice (MPH)
Getz	Kelly	Clinical Instructor of Epidemiology	MPH PhD	Boston University Boston University	Epidemiology Epidemiology	Epidemiology and Biostatistics (MPH)
Gifford	Allen	Professor of Health Law, Policy & Management	MD	University of North Carolina	Medicine	Health Services Research (MS, PhD)
Gradus	Jaimie	Assistant Professor of Epidemiology	MPH DSc	Boston University Boston University	Epidemiology Epidemiology	Epidemiology (MS, PhD)
Green	Traci	Associate Professor of Community Health Sciences	MSc PhD	McGill University Yale University	Epidemiology Epidemiology	Health Communication and Promotion (MPH)
Gunn	Christine	Research Assistant Professor of Health Law, Policy & Management	MA	University of Western Ontario	Kinesiology	Healthcare Management (MPH)
Hanchate	Amresh	Associate Professor of Health Law, Policy & Management	MA PhD	University of Pittsburgh University of Wisconsin	Economics Economics	Health Services Research (MS, PhD)
Hannan	Marian	Adjunct Assistant Professor of Epidemiology	MPH DSc	Yale University Boston University	Epidemiology Epidemiology	Epidemiology (MS, PhD)
Hatch	Elizabeth	Professor of Epidemiology	MS PhD	Harvard University Yale University	Health Policy Management Epidemiology	Epidemiology and Biostatistics (MPH)
Heaton	Kristin	Adjunct Research Assistant Professor of Environmental Health	MS PhD	University of Maryland University of Maryland	Psychology Psychology	Environmental Health (MS, PhD)

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Hermos	John	Associate Professor of Community Health Sciences	MD	Boston University	Medicine	Community Assessment, Program Design, Implementation, and Evaluation (MPH)
Hernandez-Diaz	Sonia	Adjunct Assistant Professor of Epidemiology	MD MPH DrPH	Universidad Autonoma De Madrid Harvard University Harvard University	Medicine Quantitative Methods Pharmcoepidemiology	Epidemiology and Biostatistics (MPH)
Himali	Jayandra	Research Assistant Professor of Biostatistics	MSc PhD	Tribhuvan University Boston University	Statistics Biostatistics	Epidemiology and Biostatistics (MPH)
Hochberg	Natasha	Assistant Professor of Epidemiology	MD MPH	Case School of Medicine Emory University	Medicine Public Health	Epidemiology and Biostatistics (MPH)
Hutcheon	Jennifer	Adjunct Assistant Professor of Epidemiology	PhD	McGill University	Epidemiology	Epidemiology (MS, PhD)
Hutchins	Ellen	Adjunct Associate Professor of Community Health Sciences	MSW MPH ScD	University of Connecticut Johns Hopkins University Johns Hopkins University	Social Work Public Health N/A	Health Communication and Promotion (MPH)
Huybrechts	Krista	Adjunct Assistant Professor of Epidemiology	MS PhD	Eur University of Antwerp Boston University	Economics Epidemiology	Epidemiology (MS, PhD)
Hwang	Shih-Jen	Adjunct Research Assistant Professor of Biostatistics	MPH MHS PhD	National Taiwan University Johns Hopkins University Johns Hopkins University	Epidemiology Epidemiology Epidemiology	Biostatistics (MA, MS, PhD)
Jacobson	Karen	Assistant Professor of Epidemiology	MD MPH	Johns Hopkins University Harvard University	Medicine Clinical Evaluation/Research	Epidemiology and Biostatistics (MPH)

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Jarrah	Zina	Adjunct Lecturer of Global Health	MPH	Boston University	Global Health Management	Program Management (MPH)
Jick	Susan	Adjunct Professor of Epidemiology	MPH DSc	Boston University Boston University	Epidemiology Epidemiology	Epidemiology and Biostatistics (MPH)
Johnson	William	Associate Professor of Biostatistics	MS MA PhD	Brigham Young University Harvard University Harvard University	Statistics Biostatistics Biostatistics	Biostatistics (MA, MS, PhD)
Kalesan	Bhindu	Assistant Professor of Community Health Sciences	MSc PhD MPH	Tamil Nadu Dr. M.G.R. Medical University Universitaet Bern Johns Hopkins University	Epidemiology Epidemiology Epidemiology	Community Assessment, Program Design, Implementation, and Evaluation (MPH)
Kangas	Laura	Adjunct Clinical Instructor of Health Law, Policy & Management	EdM	Harvard University	Education	Health Services Research (MS, PhD)
Kaplan	Warren	Clinical Assistant Professor of Global Health	MS PhD JD MPH	Texas A&M University Boston University Suffolk University Boston University	Oceanography Biology Law International Health	Program Management (MPH)
Kaur	Guneet	Research Assistant Professor of Health Law, Policy & Management	PhD PhD MPH MA	University of Southern California University of Southern California University of Southern California University of Delaware	Health Behavior Research Epidemiology Biostatistics Health Policy Management	Health Services Research (MS, PhD)
Kaye	James	Adjunct Associate Professor of Epidemiology	MD MPH DrPH	Stanford University School of Medicine Harvard University Harvard University	Medicine Public Health Public Health	Epidemiology (MS, PhD)

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Killiany	Ronald	Associate Professor of Environmental Health	MA PhD	University of Hartford Northeastern University	Psychology Psychology	Environmental Health (MS, PhD)
Kingsdale	Jon	Associate Professor of the Practice of Health Law, Policy & Management	PhD MA	University of Michigan at Ann Arbor University of Michigan at Ann Arbor	History	Healthcare Management (MPH)
Ko	Stephen	Adjunct Assistant Professor of Global Health	MA MD MPH MDiv	College of William and Mary Medical College of Georgia Columbia University Gordon-Conwell Theology Seminary	Chemistry Medicine International Health Ministry	Program Management (MPH)
Kramer	Jessica	Adjunct Assistant Professor of Health Law, Policy & Management	MS PhD	University of Illinois, Chicago University of Illinois, Chicago	Occupational Therapy Disability Studies	Health Services Research (MS, PhD)
Kuhlthau	Karen	Adjunct Assistant Professor of Community Health Sciences	MA PhD	University of Michigan at Ann Arbor University of Michigan at Ann Arbor	Population Sciences Population Sciences	Public Health Nutrition (MS)
Labonte	Alan	Research Instructor of Health Law, Policy and Management	MBA DBA	Clark University Boston University	Business Administration Operations Management	Healthcare Management (MPH)
Laddis	Andreas	Adjunct Instructor of Community Health Sciences	MD	University of Thessaloniki	Medicine	Community Assessment, Program Design, Implementation, and Evaluation (MPH)

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Lagasse	David A	Adjunct Clinical Instructor of Health Law, Policy & Management	MA	University of Michigan at Ann Arbor	Economics	Healthcare Management (MPH)
Laing	Richard	Professor of Global Health	MSc MD	University of London University of Zimbabwe	N/A Medicine	Program Management (MPH)
LaMorte	Wayne	Professor of Epidemiology	MD PhD MPH	University of Medicine & Dentistry of New Jersey Boston University Boston University	Medicine Biochemistry Epidemiology	Epidemiology and Biostatistics (MPH) Public Health Practice (Executive MPH)
Lamstein	Joel	Adjunct Associate Professor of Global Health	SM/ScM	Massachusetts Institute of Technology	N/A	Program Management (MPH)
Lasser	Karen	Associate Professor of Community Health Sciences	MD MPH	Cornell University Medical College Harvard University	Medicine Clinical Evaluation/Research	Community Assessment, Program Design, Implementation, and Evaluation (MPH)
Lewis	Elizabeth	Adjunct Assistant Professor of Global Health	MBA	Bentley College	Business Data Analysis	Monitoring and Evaluation (MPH)
Linas	Benjamin	Associate Professor of Epidemiology	MD MPH	New York University Harvard University	Medicine Clinical Evaluation/Research	Epidemiology and Biostatistics (MPH)
Lincoln	Alisa	Adjunct Professor of Community Health Sciences	MPH PhD	Boston University Columbia University	Social & Behavioral Sciences Social Sciences	Health Communication and Promotion (MPH)
Logue	Mark	Associate Professor of Biostatistics	MS PhD	University of Iowa University of Iowa	Statistics Statistics	Biostatistics (MA, MS, PhD)
Lopez	Russell	Adjunct Assistant Professor of Environmental Health	ScD	Boston University	Environmental Health	Environmental Hazard Assessment (MPH)

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Losina	Elena	Adjunct Associate Professor of Biostatistics	MSc PhD	Odessa National I.I. Mechnikov Universit Boston University	Mathematics Biostatistics	Biostatistics (MA, MS, PhD)
Mahalingaiah	Shruthi	Assistant Professor of Epidemiology	MD MS	Harvard University Boston University	Medicine Epidemiology	Epidemiology (MS, PhD)
Mahon	Barbara	Adjunct Assistant Professor of Epidemiology	MD	University of California San Francisco	Medicine	Epidemiology and Biostatistics (MPH)
			MPH	University of California at Berkeley	Epidemiology	
Mangione	Thomas	Adjunct Associate Professor of Epidemiology	MA	University of Michigan at Ann Arbor	Psychology	Epidemiology and Biostatistics (MPH)
			PhD	University of Michigan at Ann Arbor	Psychology	
Marona	Cristin	Adjunct Lecturer of Global Health	MPH	Boston University	International Health	Monitoring and Evaluation (MPH)
Mascoop	Ethan	Adjunct Clinical Instructor of Environmental Health	MPH	Boston University	Environmental Health	Environmental Hazard Assessment (MPH)
			MS	Boston University	Environmental Management	
Massaro	Joseph	Professor of Biostatistics	MA PhD	Boston University Boston University	Mathematics Mathematics	Epidemiology and Biostatistics (MPH)
Mcnair	Lindsay	Adjunct Assistant Professor of Epidemiology	MD	University of Connecticut	Medicine	Epidemiology and Biostatistics (MPH)
			MPH	Boston University	Health Administration/Education	
Menon	Sandeep	Adjunct Assistant Professor of Biostatistics	MPH PhD	Boston University Boston University	Epidemiology Biostatistics	Biostatistics (MA, MS, PhD)

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Merewood	Anne	Associate Professor of Community Health Sciences	MA MPH PhD	University of Cambridge Boston University University of Cambridge	N/A Public Health English Literature	Health Communication and Promotion (MPH)
Michaels	Margo	Adjunct Clinical Assistant Professor of Community Health Sciences	MPH	University of North Carolina at Chapel Hill	Health Administration/ Education	Community Assessment, Program Design, Implementation, and Evaluation (MPH)
Migliorini	Luigi	Adjunct Assistant Professor of Global Health	MD MPH	University of Siena Boston University	Medicine Public health	Program Management (MPH)
Milstein	Bobby	Adjunct Associate Professor of Community Health Sciences	MPH	Emory University	Social & Behavioral Sciences	Health Communication and Promotion (MPH)
Minichiello	John	Lecturer of Health Law, Policy & Management	MBA	Northeastern University	Business Administration	Healthcare Management (MPH)
Monti	Stefano	Associate Professor of Biostatistics	MS MS PhD	University of Houston University of Pittsburgh University of Pittsburgh	Computer Science Artificial Intelligence Artificial Intelligence	Biostatistics (MA, MS, PhD)
Mwananyanda	Lawrence	Adjunct Research Assistant Professor of Global Health	MD MPH	Jagiellonian University Univ Alabama Birmingham	Medicine Epidemiology	Leadership, Management, and Policy (DrPH)
Naimi	Timothy	Associate Professor of Community Health Sciences	MD MPH	UMASS Medical School Harvard University	Medicine Public Health	Community Assessment, Program Design, Implementation, and Evaluation (MPH)
Neogi	Tuhina	Professor of Epidemiology	MD PhD	University of Toronto Boston University	Medicine Epidemiology	Epidemiology (MS, PhD)
Orlando	Laura	Adjunct Assistant Professor of Environmental Health	MPA	Harvard University	N/A	Environmental Hazard Assessment (MPH)

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Outterson	Michael	Associate Professor of Health Law, Policy & Management	JD LLM	Northwestern University Univ of Cambridge	Law Law	Health Policy and Law (MPH)
Ozonoff	Alexander	Adjunct Associate Professor of Biostatistics	MA PhD	University of California, Santa Barbara University of California, Santa Barbara	Mathematics Mathematics	Epidemiology and Biostatistics (MPH)
Ozonoff	David	Professor of Environmental Health	MD MPH	Cornell University Johns Hopkins University	Medicine International Health	Environmental Hazard Assessment (MPH)
Palfrey	John	Clinical Professor of Community Health Sciences	MD MS MPhil	Columbia University Rockefeller University Columbia University	Medicine N/A Historical Studies	Community Assessment, Program Design, Implementation, and Evaluation (MPH)
Palumbo	Carole	Research Associate Professor of Environmental Health	PhD	Boston University	Behavioral Neuroscience	Environmental Health (MS, PhD)
Parker	Victoria	Adjunct Associate Professor of Health Law, Policy and Management	EdM DBA	Harvard University Boston University	Education Organizational Behavior	Healthcare Management (MPH)
Payne	Jonathan	Adjunct Instructor of Global Health	MS	Harvard University of Public Health	Health Policy Management	Monitoring and Evaluation (MPH)
Pelton	Stephen	Professor of Epidemiology	MD	State University of New York at Buffalo	Medicine	Epidemiology (MS, PhD)
Pencina	Michael	Adjunct Professor of Biostatistics	MA MA PhD	Warsaw University Warsaw University Boston University	Applied Mathematics American Studies Mathematics	Biostatistics (MA, MS, PhD)
Polak	Joseph	Assistant Professor of Health Law, Bioethics & Human Rights	Rabbi	Rabbinical College of Quebec	N/A	Health Policy and Law (MPH)
Prudent	Nicole	Assistant Professor of Community Health Sciences	MD MPH	Universidad Nacional Autonoma De Mexico Harvard University	Medicine Public Health	Health Communication and Promotion (MPH)

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Quatromoni	Paula	Associate Professor of Epidemiology	MS ScD	University of Maine - Portland-Gorham Boston University	Human Development, Nutrition Epidemiology	Public Health Nutrition (MS)
Quintiliani	Lisa	Assistant Professor of Community Health Sciences	MA PhD	University of Massachusetts at Amherst University of North Carolina at Chapel H	Nutrition/Food Science Nutrition/Food Science	Public Health Nutrition (MS)
Ramachandran	Vasan	Professor of Epidemiology	MBBS MD DM	All India Institute of Medical Sciences All India Institute of Medical Sciences All India Institute of Medical Sciences	Medicine Medicine-Internal Medicine	Epidemiology (MS, PhD)
Ramirez Rubio	Oriana	Adjunct Assistant Professor of Epidemiology	MD MPH PhD	Universidad Autonoma De Madrid Harvard University Universidad Autonoma De Madrid	Medicine International Health Medicine	Epidemiology and Biostatistics (MPH)
Restuccia	Joseph	Associate Professor of Health Law, Policy and Management	MPH DPH/DrPH	University of California at Berkeley University of California at Berkeley	Social & Administrative Health Sciences Healthcare Management	Leadership, Management, and Policy (DrPH)
Ridzon	Renee	Adjunct Associate Professor of Epidemiology	MD	Saint Louis University	Medicine	Epidemiology (MS, PhD)
Riefkohl Iisci	Alejandro	Adjunct Assistant Professor of Epidemiology	MD	Anahuac University	Medicine	Epidemiology (MS, PhD)
Rothendler	James	Assistant Professor of Health Law, Policy & Management	MD	Columbia University	Medicine	Health Services Research (MS, PhD)

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Rothman	Kenneth	Professor of Epidemiology	DMD MPH DPH/DrPH	Harvard University Harvard University Harvard University	Dental Medicine Epidemiology Epidemiology	Epidemiology (MS, PhD) Public Health Practice (MPH)
Russmann	Stefan	Adjunct Associate Professor of Epidemiology	MD	Albert Ludwigs Universitaet Freiburg	Medicine	Epidemiology (MS, PhD)
Sakala	Carol	Adjunct Assistant Professor of Community Health Sciences	PhD MA MSPH	Boston University University of Chicago University of Utah	Health Policy Anthropology Public Health	Public Health Nutrition (MS)
Samet	Jeffrey	Professor of Community Health Sciences	MA MD MPH	Brandeis University Baylor College of Medicine Boston University	Chemistry Medicine Epidemiology	Leadership, Management, and Policy (DrPH)
Sandel	Megan	Associate Professor of Environmental Health	MD MPH	Dartmouth College Boston University	Medicine Environmental Health	Environmental Health (MS, PhD)
Sanne	Ian	Adjunct Associate Professor of Global Health	MBBCh FCP (S.A.) DTM&H	University of the Witwatersrand College of Medicine of South Africa University of the Witwatersrand	N/A N/A Topical Medicine & Hygiene	Program Management (MPH)
Saper	Robert	Associate Professor of Epidemiology	MD MPH	Harvard University Harvard University	Medicine Public Health	Epidemiology and Biostatistics (MPH)
Scout		Adjunct Clinical Assistant Professor of Community Health Sciences	MA PhD	George Mason University Columbia University	Sociology Social Sciences	Health Communication and Promotion (MPH)
Seage	George	Adjunct Associate Professor of Epidemiology	MPH DSc	Boston University Boston University	Environmental Health Epidemiology	Epidemiology (MS, PhD)
Solomons	Noel	Adjunct Professor of Global Health	MD	Harvard University	Medicine	Monitoring and Evaluation (MPH)

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Sorensen	Henrik	Adjunct Professor of Epidemiology	MD PhD DMSc	Univ of Aarhus Aalborg University Univ of Aarhus	Medicine N/A N/A	Epidemiology (MS, PhD)
Sparrow	David	Professor of Epidemiology	MS DSc	University of Massachusetts at Amherst Boston University	N/A N/A	Epidemiology (MS, PhD)
Spiro	Avron	Research Professor of Epidemiology	MS PhD	Pennsylvania State University Pennsylvania State University	Human Development Human Development	Epidemiology and Biostatistics (MPH)
Squillace	Lynn	Adjunct Clinical Assistant Professor of Health Law, Policy & Management	JD MPH	Suffolk University Boston University	Law Public Health	Health Policy and Law (MPH)
Stang	Andreas	Adjunct Professor of Epidemiology	MD MPH	University of Cologne Boston University	Medicine Epidemiology	Epidemiology and Biostatistics (MPH)
Stuver	Sherri	Clinical Professor of Epidemiology	ScD	Harvard University	Epidemiology	Epidemiology (MS, PhD)
Thwin	Soe Soe	Adjunct Assistant Professor of Biostatistics	MS PhD	University of Washington Boston University	Epidemiology Biostatistics	Biostatistics (MA, MS, PhD)
Tih	Pius	Adjunct Assistant Professor of Global Health	LLB MPH PhD	University of Yaounde Boston University William Carey International University	N/A N/A N/A	Program Management (MPH)
Vardi	Moshe	Adjunct Assistant Professor of Biostatistics	MD	Tel Aviv University	Medicine	Biostatistics (MA, MS, PhD)
Vieira	Veronica	Adjunct Associate Professor of Environmental Health	MS DSc	Stanford University Boston University	Environmental Science Environmental Health	Environmental Health (MS, PhD)

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Vinceti	Marco	Adjunct Associate Professor of Epidemiology	MD PhD	University of Modena University of Milan	Medicine Public Health	Epidemiology and Biostatistics (MPH)
Vinick	Barbara	Adjunct Assistant Professor of Community Health Sciences	MA PhD	Boston University Boston University	N/A Sociology	Health Communication and Promotion (MPH)
Vokonas	Pantel	Professor of Epidemiology	MD	The Ohio State University	Medicine	Epidemiology (MS, PhD)
Vorhees	Donna	Adjunct Assistant Professor of Environmental Health	SM/ScM ScD	Harvard University Harvard University	Environmental Health Environmental Health	Environmental Hazard Assessment (MPH)
Wagner	Anita	Adjunct Assistant Professor of Global Health	PharmD MPH DPH/DrPH	MCPHS University Harvard University Harvard University	Clinical Pharmacy International Health Epidemiology	Leadership, Management, and Policy (DrPH)
Walker	Deborah	Adjunct Professor of Community Health Sciences	Med EdD	Harvard University Harvard University	Education Human Development	Health Communication and Promotion (MPH)
Walkey	Allan	Associate Professor of Health Law, Policy and Management	MD	UMASS Medical School	Medicine	Health Services Research (MS, PhD)
Walsh	Kathleen	Clinical Associate Professor of Health Law, Policy & Management	MPH	Yale University	Healthcare Administration	Healthcare Management (MPH)
Weinberg	Janice	Professor of Biostatistics	MS ScD	University of North Carolina at Chapel Hill Harvard University	Biostatistics Biostatistics	Epidemiology and Biostatistics (MPH)
White	Laura	Associate Professor of Biostatistics	SM/ScM PhD	Harvard University Harvard University	Biostatistics Biostatistics	Biostatistics (MA, MS, PhD) Design and Conduct of Public Health Research (MPH)
Witzburg	Robert	Professor of Health Law, Policy and Management	MD	Boston University	Medicine	Health Policy and Law (MPH)

Last	First	Title/ Academic Rank	Graduate Degrees Earned	Institution(s) from which degree(s) were earned	Discipline in which degrees were earned	Current instructional area(s)
Wolff	James	Associate Professor of Global Health	MAT MD MPH	Harvard University Columbia University Harvard University	Education Medicine Public Health and Tropical Medicine	Monitoring and Evaluation (MPH) Program Management (MPH)
Woodson	Jonathan	Professor of the Practice of Health Law, Policy & Management	MD	New York University	Medicine	Health Policy and Law (MPH)
Wylie	Blair	Adjunct Assistant Professor of Global Health	MD MPH	Harvard University Columbia University	Medicine Epidemiology	Program Management (MPH)
Xanthakis	Vanessa	Assistant Professor of Biostatistics	MS PhD	National University of Athens Boston University	Applied Mathematics Biostatistics	Epidemiology and Biostatistics (MPH)
Yazdy	Mahsa	Adjunct Assistant Professor of Epidemiology	MPH PhD	Emory University Boston University	Epidemiology Epidemiology	Epidemiology (MS, PhD)
Yeboah-Antwi	Kojo	Research Associate Professor of Global Health	MPH	Royal Tropical Institute	Public Health	Program Management (MPH)
Zaman	Muhammad	Assistant Professor of Global Health	MS PhD	University of Chicago University of Chicago	Chemistry Chemistry	Program Management (MPH)
Zhang	Bin	Adjunct Research Assistant Professor of Biostatistics	MA DSc	University of Michigan at Ann Arbor Harvard University	Statistics Biostatistics	Biostatistics (MA, MS, PhD)
Zhang	Xiaoling	Assistant Professor of Biostatistics	MD MS PhD	Hubei Medical University State University of New York at Buffalo Boston University	Medicine Computer Science Health Administration/Informatics	Biostatistics (MA, MS, PhD)
Zhang	Yuqing	Professor of Epidemiology	MB MPH DSc	Wuhan Medical College University of Sydney Boston University	N/A N/A N/A	Epidemiology (MS, PhD)

Last	First	Title/ Academic Rank	Graduate Degrees Earned	Institution(s) from which degree(s) were earned	Discipline in which degrees were earned	Current instructional area(s)
Zuckerman	Barry	Professor of Community Health Sciences	MD	Georgetown University	Medicine	Community Assessment, Program Design, Implementation, and Evaluation (MPH)
Zurovac	Dejan	Adjunct Assistant Professor of Global Health	MD PhD	University of Zagrebe The Open University	Medicine N/A	Monitoring and Evaluation (MPH)

3) Include CVs for all individuals listed in the tables above. (electronic resource file)

CVs for faculty listed in tables E1.1.1 and E1.2.1. are available as electronic resource files:

- **ERF E1.3.1.** Department of Biostatistics
- **ERF E1.3.2.** Department of Community Health Sciences
- **ERF E1.3.3.** Department of Environmental Health
- **ERF E1.3.4.** Department of Epidemiology
- **ERF E1.3.5.** Department of Global Health
- **ERF E1.3.6.** Department of Health Law, Policy, and Management

4) If applicable, provide a narrative explanation that supplements reviewers' understanding of data in the tables. (self-study document)

Primary instructional faculty have 100% coverage based on a mix of education, research, and service activities that serve the school. The primary instructional faculty that are aligned with specific degree programs are those qualified to provide instruction and advising in the specialization area due to their training, extensive research, or experience in the field. The non-primary instructional faculty that are aligned with specific specializations have less than 100% coverage and are qualified to provide instruction and advising in the area based on their training, research, and experience.

All faculty listed in Table E1.1.1 are primary faculty at SPH and faculty listed in Table E1.2.1. hold primary, adjunct, or secondary faculty appointments. Since there is no tenure on the Boston University Medical Campus, the *Tenure Status or Classification* column has been removed. As indicated in criterion **A1**, all members of the SPH faculty – primary, secondary, and adjunct – are invited and encouraged to attend departmental and school-wide events including teaching workshops, School Assembly, seminars, public health fora, and symposia. All faculty, irrespective of track, are part of the annual faculty review where their contributions are evaluated and a plan for engagement for the coming year is agreed upon with each department chair.

5) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)

The interdisciplinary nature of the master's-level curriculum allows faculty to work across department and disciplinary boundaries, which benefits both faculty and students. However, the increase in specializations has also spread out faculty as a resource for curricular development and advising. The school will continue to monitor instructional faculty resources to ensure that numbers are appropriate for the size of the student body and supports regular and substantive student-faculty interactions.

SPH considers it a strength of how the school is organized; that *all faculty*, across all tracks and areas of interest are deeply immersed in the life of the school. That is, there is no difference in participation between tenure-track faculty or not, primary or secondary. All faculty are engaged in the work of the school, in building the concepts that become the work of the school, and in helping realize the vision of an ever-improving and vibrant educational program. Perhaps the challenge is that SPH has tremendous heterogeneity of faculty engagement in the educational programs, with faculty with different interests and aptitude engaged in the program. As described in criterion **H1**, faculty are regularly engaged in training related to student advising and support that aim to mitigate this weakness while building on strengths.

E2. Integration of Faculty with Practice Experience

To assure a broad public health perspective, the school employs faculty who have professional experience in settings outside of academia and have demonstrated competence in public health practice. Schools encourage faculty to maintain ongoing practice links with public health agencies, especially at state and local levels.

To assure the relevance of curricula and individual learning experiences to current and future practice needs and opportunities, schools regularly involve public health practitioners and other individuals involved in public health work through arrangements that may include adjunct and part-time faculty appointments, guest lectures, involvement in committee work, mentoring students, etc.

1) Describe the manner in which the public health faculty complement integrates perspectives from the field of practice, including information on appointment tracks for practitioners, if applicable. Faculty with significant practice experience outside of that which is typically associated with an academic career should also be identified. (self-study document)

SPH faculty integrate perspectives from their field of practice into the work of the school through 1) employing experienced public health practitioners as adjunct faculty members, 2) explicitly including service as a criterion for appointment and promotion of primary faculty, and 3) promoting faculty members with exceptional field experience through the clinical and professor of the practice tracks.

- 1) SPH adjunct faculty are public health practitioners whose primary employment is external to Boston University. These faculty members selected for their hands-on experience, often concurrently hold positions in non-profit leadership, governmental public health offices, private healthcare settings, or public health advocacy organizations. Their primary responsibility at SPH is teaching, allowing them to engage directly with students in the issues most pertinent to the current and future direction of public health. Adjunct faculty members who typify this bridging of experience and education include:
 - Laura Orlando, Executive Director of Resource Institute for Low Entropy Systems, who has 25 years of international experience working with composting toilets and greywater systems;
 - Eugene Benson, Executive Director of the Massachusetts Association of Conservation Commissions and former associate general counsel to the Massachusetts Water Resources Authority;
 - Barbara Mahon, Director of the Division of Bacterial Diseases, National Center for Immunization and Respiratory Diseases; and
 - Soe Soe Thwin, Statistician, and Manager in the Department of Reproductive Health and Research, World Health Organization, Geneva, Switzerland.

- 2) All primary faculty at SPH are expected to engage in service, defined as “public health practice that serves the community.” To this end, many primary faculty demonstrate a commitment to the field of public health through improving its ability to serve vulnerable populations. For example:
 - Dan Brooks, DSc, Associate Professor Epidemiology, Board Member, Consortium on Epidemic Nephropathy in Central America and Mexico (2012-present), Co-convenor, HUD’s Smoke-Free Housing Initiative (2016), Invited participant, White House Convening on Department of Housing and Urban Development’s Proposed Smoke Free Rule (2016).
 - Howard Cabral, PhD, Professor of Biostatistics, developer of the BODE Index for patients with COPD.

- 3) SPH’s “of the practice” faculty track attracts and promotes highly skilled practitioners, highlighting the importance of integrating practice into the work of the school. Professor of the

practice faculty focus on teaching public health skills and the application of those skills in the field. Faculty members who demonstrate this commitment to advancing public health practice include:

- Associate Professor of the Practice, Kathleen MacVarish, a local Board of Health Agent in Massachusetts for 15 years who now leads the Local Public Health training Institute of MA and co-PI's the School Health Institute for Education and Leadership Development who teaches PH712: Public Health Response to Emergencies in the United States; and
- Associate Professor of the Practice Jon Kingsdale, founding Executive Director of the Commonwealth Health Insurance Connector Authority and former senior executive for Tufts Health Plan who teaches PM840: Analysis of Current Health Policy Issues.

2) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (Self-study document)

Most SPH faculty join the school with significant practice experience and are expected to continue to have ties to the field so they may contribute to best practices and innovations. The Annual Faculty Review and promotion in the Appointments and Promotions Guidelines provide explicit guidance on the role of service in satisfactory performance and promotion. In the classroom, faculty and guest lecturers relay their own field experience and that of their practitioner colleagues.

While service is a strength of the school, there are still areas where SPH can expand its engagement in public health practice. The school has a specific promotion track for practitioners but "professor of the practice" is underutilized. Faculty recruitment emphasizes academic research more heavily than practitioner experience due to the school's funding structure and location in a large research university. This has resulted in few faculty hires into the practice track. The school ensures there is sufficient expertise from the field through engaging adjunct faculty, guest lecturers, and primary faculty with relevant experience, and recruits faculty onto the practice track when possible.

E3. Faculty Instructional Effectiveness

The school ensures that systems, policies and procedures are in place to document that all faculty (full-time and part-time) are current in their areas of instructional responsibility and in pedagogical methods. The school establishes and consistently applies procedures for evaluating faculty competence and performance in instruction. The school supports professional development and advancement in instructional effectiveness.

1) Describe the means through which the school ensures that faculty are informed and maintain currency in their areas of instructional responsibility. The description must address both primary instructional and non-primary instructional faculty and should provide examples as relevant. (self-study document)

The Annual Faculty Review reflects the school and university's commitment to faculty development through retrospectively identifying work to date and then prospectively creating a development plan. A formal annual meeting with the chair is a central component of the review process as it provides the opportunity to discuss activities, accomplishments, expectations, and development plans for the advancement of faculty scholarship, teaching, service, and citizenship. Faculty are invited to provide self-assessments of their teaching, scholarship, service, and citizenship activities to enrich the discussion. Reviews with the chair are completed by all primary and non-primary faculty annually.

Formal efforts to enhance faculty development are important for recruiting and retaining outstanding faculty. Faculty may need mentoring and specific skill development as the academic environment becomes increasingly complex and competitive; the annual faculty review helps to identify the necessary support structures and provides valuable feedback to faculty and administration.

As part of the Education Committee's charge to oversee educational programs and to ensure that faculty maintain currency in their areas of instructional responsibility, the Committee oversees systematic reviews of all course syllabi. At least once per year, each department reviews a subset of syllabi for courses offered by their faculty. All courses are formally reviewed at least once every four years, most are reviewed more frequently. Departments conduct the reviews differently. Some departments interview the course instructor and examine the current syllabus, Blackboard site, related teaching materials, online course evaluations, and student work products (e-portfolios, papers, policy briefs, proposals, videos, etc.) while others review syllabi and provide written reviews for updates and suggested modifications.

Review teams consider the following questions and dimensions:

- Course content and design: Does the syllabus give clear direction to students regarding the course, session objectives, assignments, methods for student assessment, readings, and other requirements?
- Teaching experience: What has been the instructor's experience teaching the course? What changes has the instructor made or want to make based on this experience?
- Student learning: What are the student work products and how do they demonstrate competency and achievement of the course learning objectives?
- Feedback: Are there any themes found in student feedback?

Departmental reviews are documented and describe the process, findings, and recommendations. Reports are reviewed by the Education Committee. A summary of the final report is shared with the instructor and relevant Department Chair.

2) Describe the school's procedures for evaluating faculty instructional effectiveness. Include a description of the processes used for student course evaluations and peer evaluations, if applicable. (self-study document)

SPH is committed to the ongoing evaluation of all its degree programs, which includes the evaluation of instructional effectiveness. As described in criterion **B5**, the school has an overarching evaluation plan that guides all efforts, including process and impact/outcome evaluations, which are overseen by the Education Evaluation Subcommittee. The evaluation of each curricular component ensures that:

- Individual courses result in the achievement of learning objectives,
- Activities, such as the practicum and integrative learning experiences and research projects, are appropriate to achieve the expected competencies, and
- The overall curriculum results in the achievement of desired competencies.

Student course evaluations are another method used to evaluate instructional effectiveness. Course evaluations are administered by the Education Office for every course and students typically have ten days to complete the online evaluation. Students receive an email invitation and up to four reminders to complete the evaluation form. The school stresses the importance of professional feedback and indicates that comments should focus on course elements that helped the student's learning process. Both qualitative and quantitative results are compiled into an online database and available for faculty review at the close of each semester. All faculty have time to review the evaluations before they are made available to the SPH community. The online database that is visible to the SPH community displays two years of historical data in addition to the current year so that the evaluations reflect the most recent offerings of all courses.

Course evaluation feedback allows faculty to learn more about the student experience in the course and informs decisions regarding learning assessments, teaching methodology and use of educational technology, course sequencing, classroom management, and training opportunities for faculty and staff to enhance the learning experience.

3) Describe available university and programmatic support for continuous improvement in faculty's instructional roles. Provide three to five examples of school involvement in or use of these resources. The description must address both primary instructional faculty and non-primary instructional faculty. (self-study document)

The school and university are committed to supporting faculty in the advancement of their pedagogical development. SPH faculty, both primary and non-primary, are active in strategic planning for programs, presenting on new topics and techniques, and participating actively in events. For example:

- The **Center for Teaching & Learning** (CTL) partners with faculty to cultivate teaching that is inclusive, centered on student learning, and guided by research. CTL offers individualized consultations, workshops, seminars, and institutes designed to promote critical reflection and experimentation in teaching, including the purposeful use of technologies. Individual SPH faculty have enlisted consultants from CTL to advise on course content and assessments. Consultants from CTL have also been invited to SPH to run workshops at Education Retreats (described below).
- **John McCahan Education Day** is an annual day-long retreat for educators across the Medical Campus. Educational collaboration and networking are facilitated through workshops and presentations by instructional faculty. SPH is consistently well-represented. Each year SPH faculty run workshops, submit posters and participate in the Dean's discussion panel.
- **SPH Education Retreats** are held twice a year before the beginning of the fall and spring semesters. These half-day retreats offer multiple workshops focusing on faculty instruction, including handling difficult conversations in the classroom, course design and redesign, and a

peer review workshop to assess and clarify writing assignments. The agenda is determined by a survey of faculty interest.

- The **SPH Teaching Collaborative** holds monthly lunch and learn workshops. Examples of past topics include: the mixed classroom: helping bridge course content for public health graduate students, My Media training, working with students with disabilities, and an overview of BU library services.
- The **Educational Scholarship Working Group** reviews strategies for highlighting educational innovation at SPH. The working group is currently focusing on educational scholarship.

In support of excellence and continuous improvement in education, the school offers **Educational Innovation Awards** which are awarded to promising pilot project applications from SPH faculty who are engaged in teaching a course or managing an educational program at SPH. These awards are intended to strengthen the school's competency-based educational programs through innovation in teaching, assessment, or evaluation. Priority is given to pilot proposals that are interdisciplinary in nature, have the potential for impact, and have the capacity for implementation more broadly across SPH. Awardees are required to demonstrate scholarship generated by the pilot award and to present at one BU educational symposia.

4) Describe the role of evaluations of instructional effectiveness in decisions about faculty advancement. (self-study document)

Decisions regarding faculty advancement are outlined in the SPH appointments and promotions guidelines. The guidelines are intended to clarify expectations on appointment and promotion decisions and are used by faculty, chairs, and members of the Appointments and Promotions Committee. There are specific criteria for appointment and promotion at each academic rank in education, scholarship, service, and citizenship. Teaching contributions are a primary consideration in appointment and promotion decisions for faculty on the clinical, lecturer, and practice tracks, and a substantive consideration for faculty members on the unmodified track. Faculty members on the research track are encouraged to engage in teaching activities and are evaluated on their teaching using the same criteria. Of note, the guidelines broadly define teaching and include teaching outside of the classroom.

Teaching contributions that are considered in promotion decisions, include:

- Serving as primary instructor or co-instructor in courses;
- Major or primary dissertation advisor for doctoral students and post-doctoral fellows;
- Committee member for doctoral students (e.g., dissertation or exam committees);
- Academic advisor to MPH or MS students, and students in other and non-doctoral degree programs;
- Independent and directed research instruction;
- Involvement of students in the faculty member's research and practice is considered;
- Invited lectures at other universities and colleges, as well as guest lectures in other courses at SPH and Boston University, and invited lectures at learned professional society meetings; and
- Involvement in curriculum development for the department and/or the school.

5) Select at least three indicators, with one from each of the listed categories that are meaningful to the school and relate to instructional quality. Describe the school's approach and progress over the last three years for each of the chosen indicators. In addition to at least three from the lists that follow, the school may add indicators that are significant to its own mission and context.

Faculty currency

- External reviews of proposed or existing courses or curricula, outside of normal university processes
- Peer/internal review of syllabi/curricula for currency of readings, topics, methods, etc.
- Annual or other regular reviews of faculty productivity, relation of scholarship to instruction
- Faculty maintenance of relevant professional credentials or certifications that require continuing education

Faculty instructional technique

- Frequency of internal quality reviews of existing courses or curricula
- Participation in professional development related to instruction
- Peer evaluation of teaching
- Student satisfaction with instructional quality

School-level outcomes

- Courses that are team-taught with interprofessional perspectives
- Courses that integrate technology in innovative ways to enhance learning
- Courses that involve community-based practitioners
- Courses that integrate service learning, as defined by the school
- Courses that integrate community-based projects
- Courses that use higher-level assessments
- Courses that employ active learning techniques
- Teaching assistants trained in pedagogical techniques
- Implementation of grading rubrics
- Any other measure that tracks use of pedagogical techniques and is meaningful to the school

(self-study document)

Faculty currency: annual or other regular reviews of faculty productivity, relation of scholarship to instruction

The Annual Faculty Review provides an opportunity for faculty to reflect on their work and to identify areas for development through a structured review process with their department chairs. Department chairs review each faculty member's productivity in terms of research, practice, and scholarship, and discusses how these activities translate into the classroom. If gaps are identified, the chair refers the faculty member to appropriate professional development resources. The annual reviews reflects the school and university's commitment to faculty development. Over the last three years, the AFR process has been formalized, streamlined, and aligned more closely with scholarship and engagement expectations of all faculty. In addition, at the end of each AFR cycle, all faculty are issued a formal letter summarizing the discussion with their chair and outlining their plan and professional development activities for the upcoming year. The AFR process now encompasses the review of all faculty, including those with secondary and adjunct appointments.

Faculty instructional technique: student satisfaction with instructional quality

Course evaluations are administered at the end of every semester and are used to collect feedback on the quality of teaching in the classroom. Course evaluation feedback highlights the student experience and allows faculty to reflect on what worked well and how the course can be improved. The information gathered also informs the teaching award selection and the annual faculty review process.

SPH students also provide feedback on their satisfaction with instructional quality in the annual School Survey, available as **ERF C2.5.1**. According to the 2015 survey results, more than 87% of all respondents indicated that they were very satisfied or satisfied with the overall academic experience (across all courses in all departments), the academic experience in their specialization, and the quality of instruction from faculty. In 2016, that improved to at least 94%. In 2017, at least 85% of respondents were very satisfied or satisfied. While this is a slight decrease, it is not entirely unexpected given the school's major MPH curriculum re-design.

School-level outcomes: teaching assistants trained in pedagogical techniques

Teaching Assistants (TAs) are an integral part of the education team. SPH requires that all teaching assistants complete a comprehensive training program designed to ensure that TAs more effectively engage in practice-based learning and discussion in the classroom, as well as meet the diverse and complex needs of students outside of the classroom. All TAs are required to complete a training that includes:

- Setting expectations for the role, anticipating time commitments and other best practices;
- Establishing guidelines for consistency around grading assessments and best practices for providing oral and written feedback
- Advocating for and reviewing midpoint evaluations in the course for the benefit of the instructor and the students;
- Engaging and facilitating difficult conversations;
- FERPA, accidental third-party violations, and best practices for maintaining student confidentiality;
- Developing professional relationships with faculty members;
- Maintaining boundaries with students, including the limitations and commitments to responding to student questions via email or phone calls and best practices with social media;
- Identifying students in distress and connecting with the necessary resources; and
- Introduction to Blackboard.

6) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)

Course evaluations are an important component of measuring instructional effectiveness. Course evaluations are administered at the end of each course, allowing faculty to review the feedback and make changes before the course is offered again. With the goal of consistently evaluating the school's processes and seeking new ways to gather quality student feedback, SPH tasked a working group comprised of faculty from across departments and staff from the education office with developing a revised evaluation process and tools that reflect input from all stakeholders within the SPH community. The working group considered the questions used in the existing course evaluation, the utility of the evaluation to all stakeholders (i.e., administration, faculty, students), and supporting evidence in the field. The working group is currently soliciting feedback on their proposed revisions from each academic department. The revised evaluation will be presented to the school community for feedback and approval prior to implementation.

E4. Faculty Scholarship

The school has policies and practices in place to support faculty involvement in scholarly activities. As many faculty as possible are involved in research and scholarly activity in some form, whether funded or unfunded. Ongoing participation in research and scholarly activity ensures that faculty are relevant and current in their field of expertise, that their work is peer reviewed and that they are content experts.

The types and extent of faculty research align with university and school missions and relate to the types of degrees offered. For example, when doctoral degrees are offered, the school's research portfolio in those areas take on greater importance. All types of research are valuable, whether conducted with the purpose of improving public health practice or for generating new knowledge.

Faculty integrate research and scholarship with their instructional activities. Research allows faculty to bring real-world examples into the classroom to update and inspire teaching and provides opportunities for students to engage in research activities, if desired or appropriate for the degree program.

1) Describe the school's definition of and expectations regarding faculty research and scholarly activity. (self-study document)

Scholarship and research are critical to the impact and reputation of the school. In addition to generating new knowledge for solving real world public health problems, faculty engagement in scholarship and research ensures that students are learning cutting edge methods in applied contexts that are both current and significant. For example, it is motivating and rewarding for students to see media coverage of an interesting new research study and then arrive to class for a discussion with one of the authors. In this way, the rich portfolio of research and scholarship at the school enriches the experience of students both inside and outside the classroom.

The scholarship and research expectations of SPH faculty are summarized in the school's appointment and promotions guidelines. In general, contributions of research and scholarship are expected to meet all three of the following criteria:

- generation of new knowledge or the application of existing knowledge in new ways;
- documentation of the new knowledge generated;
- public sharing of the documentation so that it is accessible to others for review and critique.

At the highest level, public sharing of information occurs following the scrutiny of peer review. However, the school recognizes that different types of scholarly contributions, even if contributed outside of a peer review process, can increase our collective understanding of a problem and/or recommend insightful responses to a problem, particularly when oriented towards non-academic stakeholders.

Scholarship in teaching includes publications associated with teaching materials or methods, developing funded grant proposals to support instructional activities, producing and disseminating videos and curricula intended for instructional purposes, and publishing textbooks, review articles, and (text)books.

Scholarship in research includes the generation of research proposals, research protocols, working papers, journal articles, research reports, book chapters, and books. Research activities and knowledge generated from private consultancies that are not distributed beyond the client would not be considered academic scholarship.

Scholarship in practice includes technical reports, presentations at professional meetings that summarize new knowledge or new applications of practice-based principles, the publication of new materials or principles for public health program content, and contributions to the writing of new public health policy and legislation.

Each year, faculty discuss their planned scholarly activities with their department chair as part of the Annual Faculty Review, a process overseen by the Associate Dean for Research and Faculty Advancement. The mix and type of scholarly activity varies based on a faculty member's track and professional goals. Faculty members on the unmodified, clinical, and research tracks must commit to producing scholarly and/or research achievements that align with the mission of the school. Faculty who are on the lecturer and practice tracks are not expected to engage in scholarly or research activities. On average, the amount of time dedicated to research and scholarship is approximately 60% for unmodified faculty, 30% for clinical faculty, and 90% for research faculty. There is also variability within track from year to year based on factors such as the availability of external funding, teaching responsibilities, and/or administrative roles at the school (e.g. directing educational programs, department chairs, etc).

2) Describe available university and school support for research and scholarly activities. (self-study document)

Boston University, with its 17 schools and colleges, is the fourth-largest independent university in the United States. BU is one of 62 members of the Association of American Universities, an elite organization of leading research universities in the United States and Canada, and had over \$400 million in research awards in FY17. The extensive university-level support for the research enterprise is available at bu.edu/research/support. A few of the key administrative support services include:

- The Office of Sponsored Programs (OSP) specializes in assisting faculty and administrators in proposal review and submission, award negotiation and acceptance and university policies and procedures. OSP is the coordinating office for all pre-award and non-financial post-award needs.
- Post Award Financial Operations (PAFO) assists faculty and administrators with financial and compliance oversight of sponsored program accounts, financial reporting and billing, effort reporting, service center rate negotiation, and F&A rate proposals.
- Research Compliance helps faculty, administrators, and staff involved in research comply with city, state, and national laws and regulations, and maintain standards of integrity, quality, and ethics (e.g. Animal Care and Use, Human Subjects, Responsible Conduct of Research, etc).

At the school-level, the research portfolio included \$48 million of externally awards in FY17. To complement the university-level resources, SPH provides additional programs and resources to support research and scholarly activities:

- The school's pilot grant program supports junior faculty members in launching independent research careers and establish investigators in testing proof of concept. Awarded in two annual cycles, the pilot awards provide investigators with up to \$20,000 for yearlong projects. Projects must align with the school's mission and preference is given to projects that align with the four research focus areas that emerged from the school's strategic thinking efforts: urban living, aging and well-being, health across the lifecourse, and health systems. Partially supported by generous donations, the program has funded 29 projects more than \$550,000 over the last three years.³⁰
- The SPH grant writing workshop is a semester-long program where faculty are guided through an entire grant submission process, from concept to a finalized grant proposal. Facilitated by the Director of Faculty Development and a senior faculty member, the program provides extensive feedback on draft proposals, including participation in a mock study section with senior faculty from across the school.
- The SPH Faculty Mentoring Program is a structured approach that pairs junior faculty with a mentoring team that aligns with the junior faculty member's career goals. The goals of the program include providing support in excelling at teaching and research, understanding policies

³⁰ Includes FY16-18 awards through Fall 2017. Spring 2018 projects will be added for the final self-study.

and procedures, developing professional networks, and positioning the faculty member for promotion. All junior faculty are required to participate in the program for at least their first three years at the school.

- Each new faculty member, as part of their initial hire, receives a startup package that includes discretionary funds. Additionally, all faculty members who are at least half-time receive annual discretionary funds of \$2,000, which may be used to support their professional development or research, teaching, and service activities. Discretionary funds automatically roll over from year to year and may be supplemented by other BU sources.
- The school's Biostatistical and Epidemiology Data Analytics Center (BEDAC) provides technical research support and data management services for the public health faculty and other Medical Campus researchers. BEDAC has expertise in study design, development of computerized and web-based data collection and tracking systems, scanning technology, quality control procedures, and statistical analyses.

To support research administration at the school and ensure that SPH optimally interfaces with OSP and PAFO at the university-level, each department has a grants manager who works closely with faculty during the entire life cycle of a grant from submission to closeout. While the faculty member has primary responsibility for the fiscal and administrative aspects of the grant, the grants manager is responsible for day-to-day management and is also the liaison between the faculty investigator, OSP, and PAFO.

The SPH Sponsored Projects Operating Committee (SPOC), chaired by the Director of Sponsored Programs, is comprised of all SPH grants managers. The committee convenes monthly to discuss and share ideas, questions, and problems encountered in grant management activities. Staff members from OSP and PAFO frequently participate in these meetings to reinforce and communicate university policies and procedures.

3) Describe and provide three to five examples of faculty research activities and how faculty integrate research and scholarly activities and experience into their instruction of students. (self-study document)

The research and scholarly activities of the faculty enrich the experience of students both inside and outside of the classroom. All aspects of the research experience – from the early stages of design and proposal, to conducting a study in the field, to analyzing and interpreting data, to presenting and implementing the findings - are well represented in our curriculum. Some specific examples follow.

Professor Patricia Fabian in the Department of Environmental Health applies her expertise in environmental health, environmental engineering, systems science, and geographical information systems (GIS) to study multi-stressor public health problems. In the course EH811: GIS for Public Health Data Analytics, she brings her research experience to the classroom by having students conduct projects in which they create and manage geospatial databases, conduct network-based spatial analysis, and apply spatial statistics tools to different disciplines of public health. These projects are aligned with Professor Fabian's research efforts to quantify and describe environmental health disparities across Massachusetts communities.

Professor David Jones in the Department of Health, Law, Policy and Management conducts research on the politics of health reform and social determinants of health and is an expert on the Affordable Care Act. In the course PM760: Health Law, Policy, and Policymaking, Professor Jones brings his scholarship to the classroom by drawing from his recently published book (Oxford University Press) which focuses on how states made decisions around what type of health insurance exchange to establish as part of the Affordable Care Act's implementation. In 2017, as Congress debated changes to the US health care system, Professor Jones was able to use the unfolding events as the basis for learning about health policy in real time.

Professor Lisa Fredman in the Department of Epidemiology investigates the health risks associated with psychosocial factors with special attention to elderly populations. In the course EP817: A Guided Epidemiology Study, she brings her research experience to the classroom by having students develop and conduct a hypothesis-based study using existing datasets from actual epidemiologic studies. Through a combination of workshops, written assignments, and oral presentations, students develop hypotheses, conduct literature reviews, perform data analyses, and write each section of a manuscript. The final project requires students to integrate all sections into a complete paper for journal submission.

Professor Nafisa Halim in the Department of Global Health conducts research that involves the monitoring and evaluation of programs that focus on improving human capital formation (early childhood development, education, health, nutrition) among women, children and adolescents. In the course GH744: Monitoring and Evaluation of Global Health Programs, Professor Halim creates opportunities for students to develop the practical skills of program monitoring and evaluation through applied exercises involving the preparation and critiquing of monitoring and evaluation plans.

Professor Joseph Massaro in the Department of Biostatistics has decades of experience designing and conducting statistical analyses in support of clinical trials. In the course BS851 Applied Statistics in Clinical Trials I, Professor Massaro's uses his own research projects as the basis for providing students the opportunity for hands on experiential learning. Students have the first-hand experience of analyzing continuous, dichotomous, and time-to-event clinical trial data, and then must also interpret their results and present their findings

Though these are just some specific examples, the vast majority of courses bring elements of the research process into the classroom through the integration of relevant journal articles into the required reading, the use of case studies, and/or the use of exercises or projects designed to mimic certain aspects of an authentic research experience.

4) Describe and provide three to five examples of student opportunities for involvement in faculty research and scholarly activities. (self-study document)

SPH's large and diverse research portfolio provides many opportunities for students to participate in faculty research, both in paid and volunteer capacities. In 2017, 61% of faculty worked with students on research and 54% of the school's grants involved a SPH student. The nature and extent of involvement varies by degree program and by the level of interest of each student. Opportunities for different levels of participation range from voluntary or temporary part-time contributions (e.g. conducting field investigation), directed research opportunities (i.e. defined research activities/experience for course credit), employment as a paid research assistant (i.e. funded via extramural awards for specific projects), and doctoral research (i.e. multi-year engagement to conduct research and produce dissertation to meet degree requirements). A few specific examples follow.

Increasing Equitable Access to Safe Deliveries in Zambia (**MAHMAZ Project**). MAHMAZ is an impact and process evaluation of maternity homes in Zambia using a cluster-randomized matched-pair design developed in the department of Global Health. Student involvement has included over 20 MPH or MBA/MPH students who engaged in building finance and sustainability tools for maternal waiting homes, electronic qualitative and quantitative data collection systems for baseline and routine data collection, qualitative codebooks for in-depth interviews and focus group discussions, communication and dissemination materials for donors and the general public, performing gap analysis on community needs, GIS mapping to understand the distance barrier, transcription, coding, and manuscript writing. Five of the MPH students had funded internship opportunities in Zambia and four former students are currently employed full time on the project. Additionally, two DrPH students engaged in creating costing best practices for building and maintaining maternal homes, performing management

quality improvement on community-based management units, transcribing, coding of qualitative data and writing manuscripts.

Investigating an epidemic of **chronic kidney disease** in Central America. This project is a collaboration among faculty in the departments of Biostatistics, Environmental Health, and Epidemiology, and focused on identifying the cause(s) of an epidemic of chronic kidney disease that is primarily affecting male manual laborers in Central America. Student involvement has included three PhD students who worked on this project as part of their research rotations and dissertation work, two MPH students who engaged as research assistants, and three MPH students conducting their practica.

The **Framingham Heart Study** (FHS). This world-renowned study has been investigating risk factors for cardiovascular disease since 1948 and was the original source for the term “risk factor” that has become commonplace and of central interest for population health scholarship. Over the years, the FHS research portfolio has expanded to include aging, arthritis, osteoporosis, lung disease, hearing/vision disorders, and dementia and has included contributions from dozens of SPH students. Over just the past several years, seven MPH students have worked as research assistants to support research activities within the research groups of specific faculty investigators, and an additional three MPH students have worked as research staff at the off-campus field office located in Framingham, MA where data and samples are obtained from the multiple-generations of participants.

Boston University Superfund Research Program. The mission of the NIEHS-funded Superfund Research Program is to find solutions to the complex health and environmental issues associated with the nation's hazardous waste sites, with the ultimate goal of understanding and breaking the link between chemical exposure and disease. The BU SRP includes five research projects and four cores, including a training core which coordinates the training experience of all trainees engaged in BU SRP research, and involves faculty from the Epidemiology and Environmental Health departments. In the most recent funding cycle, the BU SRP included engagement from six PhD students, seven MPH students, and four MS students. The students worked on the following: Project 1 (PI Aschengrau), focused on studying the impact of early life exposure to tetrachloroethylene and social stressors on alcohol and drug abuse; Project 3 (PI Schlezinger), focused on determining the molecular mechanism by which individual and complex mixtures of environmental chemicals impact adipose and bone homeostasis; the Community Engagement Core (PI Scammell), focused on linking BUSRP scientists with residents and community groups in affected neighborhoods to raise awareness of environmental and public health concerns and increase the utility of BUSRP research; and the Research Translation Core (PI Heiger-Bernays), focused on communicating the research outcomes from our program to the governmental organizations responsible for protecting the health of local communities.

Massachusetts Veterans Epidemiology Research and Information Center (**MAVERIC**) and the Center for Healthcare Organization and Implementation Research (**CHOIR**). Faculty and students within the departments of Biostatistics, Epidemiology, and Health, Law, Policy and Management engage in research opportunities through our partnerships with two VA research Centers. MAVERIC is one of eight national centers in the Department of Veterans Affairs Cooperative Studies Program that are involved in clinical trials and epidemiological research. CHOIR conducts health services, organization and implementation research that promotes Veteran-centered high-quality healthcare, identifying best practices and working with operational and policy leaders within VA to implement findings to improve clinical care. Just in the past several years, five PhD students (as part of their dissertation) and five MPH students (as part of directed research experiences or as research assistants) have contributed to research in the areas of pharmaco-epidemiology, statistical genetics, and bioinformatics, as well as the recovery of veterans with social and behavioral vulnerabilities, medication use and its outcomes, and health communication between veterans and providers or the broader healthcare system.

5) Describe the role of research and scholarly activity in decisions about faculty advancement. (self-study document)

Research and scholarly activity are an essential component of advancement for faculty on the unmodified, clinical, and research tracks. These activities are evaluated as part of the Annual Faculty Review and as part of the appointment and promotion process.

On an annual basis, each faculty member submits an updated version of their CV to their department chair, highlighting their activities and accomplishments during the past year. They also provide a narrative describing how these activities and accomplishments aligned with the goals that were set during the previous year's review process. The overall assessment of the chair is based on each faculty member's particular mix of activities and expectations, which were agreed upon during the previous year's meeting.

The role and expectations for research and scholarship are described in detail in the school's appointment and promotions guidelines. This includes the definition of scholarship given in E4.1., the expectation of scholarship for each track and rank, and the documentation faculty must provide as part of their review packet. This documentation includes an updated CV that details scholarly activities and accomplishments, as well as a personal statement that describes the impact of past scholarship and future directions. Specifically, the section of the personal statement on scholarship includes four parts: a summary of the overarching theme to scholarship, a brief description of three key areas of scholarship and contributions made within each, a summary of plans for scholarship moving forward, and metrics that illustrate the impact of their work on their field (e.g. number of publications, number of first/last/second author publications, h-index, citations, funding history, invited presentation, advocacy/media contributions, awards, and other metrics as relevant to the particular discipline). The scholarly contributions are then evaluated at each stage of the review process, which include a vote of department faculty, external reviews from experts in the faculty member's field, the Appointment and Promotions Committee, the Dean of SPH, the Provost of BUMC, and the President of Boston University.

6) Select at least three of the following measures that are meaningful to the school and demonstrate its success in research and scholarly activities. Provide a target for each measure and data from the last three years. In addition to at least three from the list that follows, the school may add measures that are significant to its own mission and context.

- Percent of faculty (specify primary instructional or total faculty) participating in research activities
- Number of faculty-initiated IRB applications
- Number of students advised
- Number of community-based research projects
- Number of articles published in peer-reviewed journals
- Total research funding
- Number of citation references
- Presentations at professional meetings
- Support for development and mentoring of new faculty
- Number of grant submissions

(self-study document)

As described in criteria B5 and B6, the school closely monitors the scholarly productivity of its faculty through a research evaluation plan. These measures align with the school's strategy map, which sets targets for both 2020 and 2030, as indicated in table E4.6.1.

Table E4.6.1. Outcome Measures for Faculty Research and Scholarly Activities

Outcome Measure	Target	Year 1 (FY2016)	Year 2 ³¹ (FY2017)	Year 3 ³² (FY2018)
Number of articles published in peer-reviewed journals	900/yr by 2020	761	685	
Total research funding	\$45,000,000 by 2020	\$40,418,299	\$45,077,558	
Faculty presentations at professional meetings	750 by 2030	522	441	

7) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)

The school's appointments and promotions guidelines have clear definitions for research and scholarship. These guidelines are made available to all faculty in the Faculty Handbook and on the school's website. Faculty have the freedom to determine the type and topic of their scholarly activity and the expected amount of research coverage is determined with the department chair at each faculty member's Annual Faculty Review.

The university and school have numerous resources available to faculty to support scholarly activity. The school's research efforts are supported by the university's sponsored programs office and post-award financial operations office, which are well-functioning service centers able to quickly respond to requests from SPH faculty, grants administrators, and SPH administration. The Associate Dean for Research and Faculty Advancement is a member of the university's Research Council, as indicated in criterion **A1**, allowing the school to stay abreast of any initiatives at the university. SPH grants administrators are experienced professionals who meet regularly to discuss best practices.

As mentioned in E4.2, to complement the university-level resources, the school provides extensive financial and intellectual resources to support research and scholarly activities of our faculty. The financial resources include start-up packages, pilot funds, and annual discretionary funds. The intellectual resources include a formal mentoring program, a grant writing workshop, and a robust data coordinating center.

Students are immersed in cutting-edge research through their coursework and many engage in in-depth research with faculty in the field. Research opportunities are not limited by degree program or specialization; on the 2017 School Survey (**ERF C2.5.1**), students from each degree program reported working with faculty on research. As expected, more doctoral and academic degree students (PhD – 75%, DrPH – 80%, MA/MS – 50%) report working on research than MPH students (24%).

In addition to the above areas of strength, the school has also taken steps to address areas in need of improvement. The school strengthened the Faculty Resources Office by creating a new position, the Director of Sponsored Programs, to oversee the administration of our sponsored portfolio at the school level and was fortunate to recruit a past President of the National Council of University Research Administrators (NCURA) into that position. The Director of Sponsored Programs works closely with the Associate Dean for Research and Faculty Advancement to ensure the school is optimizing the pre- and post-award procedures. Finally, as indicated in the school's strategy map, SPH is developing new initiatives to facilitate cross-sector collaborations that will engage partners in industry, government, and academia.

³¹ In 2017, SPH changed the AFR timeline from the academic year to the calendar year. 2017 data reflects five months of activity; 2016 and 2018 are a full calendar year.

³² Data will be updated for the final self-study.

E5. Faculty Extramural Service

The school defines expectations regarding faculty extramural service activity. Participation in internal university committees is not within the definition of this section. Service as described here refers to contributions of professional expertise to the community, including professional practice. It is an explicit activity undertaken for the benefit of the greater society, over and beyond what is accomplished through instruction and research.

As many faculty as possible are actively engaged with the community through communication, collaboration, consultation, provision of technical assistance and other means of sharing the school's professional knowledge and skills. Faculty engage in service by consulting with public or private organizations on issues relevant to public health; providing testimony or technical support to administrative, legislative and judicial bodies; serving as board members and officers of professional associations; reviewing grant applications; and serving as members of community-based organizations, community advisory boards or other groups. While these activities may generate revenue, the value of faculty service is not measured in financial terms.

1) Describe the school's definition and expectations regarding faculty extramural service activity. Explain how these relate/compare to university definitions and expectations. (self-study document)

Boston University's definition of faculty service is primarily oriented toward internal activities. Service to the university includes mentoring and advising students (in addition to regular teaching duties) and serving on committees at the departmental-, school/college-, or university-level. Community service, service to professional societies, and professional activities in the community are valued and designated as criteria for promotion, and full-time faculty members are expected to limit outside professional activities to one day per week.

The school refines the university's definition of service by distinguishing service from citizenship and administrative activities. In this case, "citizenship/administration" consists of internal activities such as committee participation or mentoring student groups, whereas, "service" consists of extramural activities such as involvement in public health organizations, service as a reviewer for grant funding agencies, journals, and other types of reports, and public health practice that serves the community.

Using this distinction, the school has disseminated expectations for service at each faculty rank and each faculty member's ability to meet service expectations is discussed as part of their Annual Faculty Review.

2) Describe available university and school support for extramural service activities. (self-study document)

SPH has a faculty culture that encourages service, recognizing that it meets the school's mission and strategy map, and is incentivized as a criterion for promotion. The school supports service through a large and assiduous Activist Lab, salary coverage for all compensated faculty, and targeted faculty development funds.

The Activist Lab is committed to real-world activism that drives lasting improvements in local, regional, and global communities. Through financially and administratively supporting the Activist Lab, the school has developed programs that highlight and seek to address the public health issues of Boston neighborhoods and practitioner communities, and practitioner communities across the US. The Activist Lab focuses its work on three main areas: workforce development, firearms, and urban solutions. As described in criteria **F3** and **F4**, under its workforce development focus, the Activist Lab equips practitioners from public health and allied fields with the skills they need to deliver public health services to a wide variety of populations. Under its firearms focus, the Activist Lab educates the public about

common sense gun legislation and the harm that gun violence causes individuals, communities, and economies. Under its urban solutions focus, the Activist Lab implements programs and services that address public health issues of those struggling with homelessness, addiction, and mental health issues while challenging bias and stigma. A core group of faculty leads the Activist Lab and all faculty are encouraged to partner with the Activist Lab on service programs relevant to their expertise and interests.

SPH covers up to 10% of each primary faculty member's salary so they may engage in service and citizenship activities. Examples of faculty service activities are available in E5.4.

Finally, as described in criterion E4, SPH provides each primary faculty member with an annual faculty development fund which may be used to further their scholarship, teaching, or service activities. This fund is cumulative and can grow from year to year.

3) Describe and provide three to five examples of faculty extramural service activities and how faculty integrate service experiences into their instruction of students. (self-study document)

Professor Emily Rothman, Associate Professor of Community Health Sciences, has served as an advisor for the Boston Public Health Commission Division of Violence Prevention's Start Strong Initiative for over 10 years. Her commitment to ending teen dating violence motivated her to develop a high school-oriented curriculum on pornography literacy. In preparation for creating the curriculum, she engaged her SB752 (Sexually Explicit Media and Public Health Methods) students in conducted interviews with high school students and a literature review. This initial research informed her work on the curriculum which was first piloted with Start Strong youth as a class called "The Truth About Pornography: A Pornography-Literacy Curriculum for High School Students Designed to Reduce Sexual and Dating Violence."

Professor Monica Onyango, Clinical Assistant Professor of Global Health, has worked with the Matera Secondary School in Siaya County, Kenya since 2011. During the early stages of the school, the area chief approached Dr. Onyango for help addressing student issues that stem from menstruation including hygiene, absenteeism and exploitation. When Dr. Onyango's GH720 (Social and Behavioral Sciences in Global Public Health) students expressed an interest in Menstrual Hygiene Management in Kenya, she took the opportunity to engage students in her work with Matera Secondary School to develop peer training on menstrual hygiene management. She then traveled to Siaya County, Kenya where she conducted a three day peer training for adolescents at Matera Secondary School, using the curriculum developed by her GH720 students. (GH720 has since been replaced by PH720: Individual, Community, and Population Health.)

Professor Jonathan Levy, Professor of Environmental Health, began his collaboration with BOS Fair Skies Coalition in 2013 when Coalition members from the Town of Milton approached him about their concerns related to Logan Airport overflights. Having previously published a scientific manuscript associating aircraft noise exposures with cardiovascular hospital admissions, Dr. Levy provided the Coalition with environmental health expertise. In 2016, Dr. Levy began teaching EH804 (Exposure Assessment), which provided him with the opportunity to engage students in his service with the Coalition. Students conducted air quality monitoring and their final report was presented to the Milton Board of Health. Since 2016, the BOS Fair Skies Coalition has continued to collaborate with Dr. Levy and EH804 students on additional monitoring studies of mutual interest.

For over 20 years Professor Kathleen MacVarish, Associate Professor of the Practice of Environmental Health, has served on the board of the Massachusetts Health Officers' Association (MHOA), a professional organization that represents public health officials charged with delivering the ten essential health services to their communities. This deep commitment to serving the MA public health workforce has informed Professor MacVarish's teaching both in terms of running grant-based continuing education activities and leading courses such as PH712 (Public Health Response to Emergencies in the United

States). As a part of the PH712 curriculum, Professor MacVarish authored case studies based on actual public health emergencies in MA such as the 2013 Marathon Bombing and her MHOA service allows her to connect directly with the health officers involved in these incidences and bring their expertise and insights to the classroom.

Associate Dean for Practice Harold Cox, who is also an Associate Professor of Community Health Sciences, has served on the Massachusetts Public Health Council for over ten years. As the primary advisory body for the MA Public Health Department, Dean Cox has been part of setting public health policy for the commonwealth. He brings this depth of experience to bear in teaching PH718 (Leadership and Management for Public Health). His lecture and class activities stem from hot topic items under consideration at the Council including tobacco use reduction, marijuana legalization, and the opioid epidemic. He also brings students to open council meetings where they can experience firsthand how policy is debated and board responsibilities are met.

4) Describe and provide three to five examples of student opportunities for involvement in faculty extramural service. (Self-study document)

Activist Fellows Program. As the lead for the Activist Lab, Dean Harold Cox, Associate Dean for Practice and Associate Professor of Community Health Sciences, works to promote activism that drives lasting improvements in the health of BU's local, regional, and global communities. Two Activist Student Fellows assist in this work by collaborating on projects such as improving the public health infrastructure in Massachusetts through policy and legislation; and addressing issues of addiction and homelessness through coalition building and awareness initiatives.

Boston Healthy Start Initiative (BHSI) student fellowships. As the Principle Investigator for the Maternal and Child Health Center of Excellence, Professor Lois McCloskey, Associate Professor of Community Health Sciences oversees ten annual BHSI student fellowships. A fellow works at one of several BHSI sites around the city making contributions to public health programming while developing their public health skills. For example, a fellow placed with the Centering Pregnancy program at Boston Medical Center conducted qualitative and quantitative research and worked with the midwife manager and Family Partners to identify ways to maximize the efficacy of the BHSI client tracking system.

Spring Break Challenge: Blackstone Community Health Center. As a member of the Blackstone Working Group, Professor Anne Fidler, Assistant Dean of Practice and Associate Professor of Environmental Health, is committed to bringing about lasting improvement in the health of the South End's under resourced communities by supporting the work of Boston Center for Youth and Families (BCYF) Blackstone Community Center. Dr. Fidler leads an annual Spring Break Challenge, which engages approximately 30 students in a week-long intensive program focused on a public health concern identified by BCYF Blackstone staff. With guidance from the faculty, students provide culturally- and organizationally-appropriate recommendations on how to address the issue.

Boston University Program for Global Health Storytelling. As a founding member of the Boston University Program for Global Health Storytelling, Professor Jennifer Beard, Clinical Associate Professor of Global Health works to improve mutual understanding and foster collaboration between global health specialists and journalists so that complex health problems can be better understood and addressed. Through a collaboration with the Pulitzer Center on Crisis Reporting's Campus Consortium, an annual student fellowship program sends public health and communications students to report on specific international health topics such as suicide risk in Guyana or reproductive health in El Salvador during the zika virus epidemic.

5) Select at least three of the following indicators that are meaningful to the school and relate to service. Describe the school's approach and progress over the last three years for each of the chosen indicators. In addition to at least three from the list that follows, the school may add indicators that are significant to its own mission and context.

- Percent of faculty (specify primary instructional or total faculty) participating in extramural service activities
- Number of faculty-student service collaborations
- Number of community-based service projects
- Total service funding
- Faculty promoted on the basis of service
- Faculty appointed on a professional practice track
- Public/private or cross-sector partnerships for engagement and service

(self-study document)

As described in criteria **B1** and **B5**, the school has a detailed strategy map and evaluation plan for service designed to improve the public's health through service to the local, national, and global community. Progress toward selected service indicators are measured on the Annual Faculty Review and follow the review and resource allocation process described on those evaluation plans.

Table E5.5.1. Service Indicators, FY2016-2018

Indicator	FY2016	FY2017 ³³	FY2018 ³⁴
Number of faculty-student service collaborations	Data collection began in FY17	95	
Number of community-based service projects involving faculty	51	45	
Public/private or cross-sector partnerships for engagement and service	106	112	

The school revised the Annual Faculty Review to capture faculty-student collaborations in 2017. Faculty detail the organization, type of project, and type of student involvement, from program development to direct implementation, providing a rich source of information.

Community-based service projects are an important part of the school's strategy map goals, with a target of 200 annual service projects by 2020. Data from the 2016 AFR and School Survey revealed that faculty and students completed 103 service projects in the 2015-2016 academic year, 51 of which involved faculty. On the 2017 AFR, faculty reported participating in 45 community-based service projects and students completed 185 service projects in the 2016-2017 academic year.

As indicated on the strategy map, SPH is actively working to broaden its cross-sector partnerships to increase innovation and learn best practices from industry, government, urban planning, advocacy, and many other sectors. SPH faculty have long engaged in interdisciplinary work and the strategy map encourages them to continue to build these relationships. In 2016, 67% of primary faculty participated in a public/private or cross-sector partnership and 73% participated in 2017.

³³ In 2017, the school aligned the Annual Faculty Review with the calendar year. 2017 AFR data reflects five months of activity; 2016 and 2018 data capture a full year of activity.

³⁴ Data will be updated for the final self-study.

6) Describe the role of service in decisions about faculty advancement. (Self-study document)

As described in the school's faculty handbook and appointments and promotions guidelines, all faculty, modified and unmodified, are expected to participate in extramural service and their service record is taken into consideration as part of the promotion process. The guidelines for service at the assistant professor level include activities such as journal review, holding municipal positions, and leadership in state level professional organizations. At the associate professor level, service activities are expected to demonstrate national impact such as editorial board participation, national advocacy, or leadership in national level professional organizations. At the professor level service leadership activities are expected to demonstrate global impact such as the development of a widely adopted best practice or international professional organization leadership. The full appointments and promotions guidelines are available as [ERF E5.6.1](#).

7) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (Self-study document)

Service is one of the three pillars of the SPH core purpose to think, teach, and do for the health of all. This value is reflected in highlighting service as a criteria for appointment and promotion and a component of the Annual Faculty Review. This approach to faculty extramural service creates high expectations for faculty performance and provides opportunity for student development.

However, there are still areas where SPH can deepen its commitment to community-based service. The university's definition of service includes internal citizenship and administrative activities. The school also combines these categories when allotting 10% salary coverage for service and citizenship/administration. This can send mixed messages to faculty who are trying to prioritize their activities. The formal, annual meeting with the chair, meeting with mentors, and the school's appointments and promotions guidelines are designed to mitigate this confusion. Ensuring clarity and expectations around service is an ongoing process.

F1. Community Involvement in School or Program Evaluation and Assessment

The school engages constituents, including community stakeholders, alumni, employers and other relevant community partners. Stakeholders may include professionals in sectors other than health (e.g., attorneys, architects, parks and recreation personnel).

Specifically, the school ensures that constituents provide regular feedback on its student outcomes, curriculum and overall planning processes, including the self-study process.

With regard to obtaining constituent input on student outcomes and on the strengths and weaknesses of the school's curricula:

- The school defines qualitative and/or quantitative methods designed to provide useful information.
- Data from supervisors of student practice experiences may be useful but should not be used exclusively.
- The school documents and regularly examines its methods for obtaining this input as well as its substantive outcomes.

1) Describe any formal structures for constituent input (e.g., community advisory board, alumni association, etc.). List members and/or officers as applicable, with their credentials and professional affiliations. (self-study document)

The school has several formal mechanisms for soliciting input from our constituencies including alumni, employers and practicum supervisors, public health leaders and practitioners, and local organizations and residents. All of these avenues represent formal engagements with multiple community sectors, are reviewed regularly, and are part of the school's ongoing efforts at being well integrated with and responsive to stakeholders. These partners were active participants in the school's strategic thinking process and provide feedback on the work of faculty, staff, and students to ensure continuous input on work that impacts the school's strategy map and advancement of the mission.

Dean's Advisory Board (DAB)

- includes alumni and friends of the school willing to offer advisory or philanthropic support to the school in achieving its mission
- Evaluates school's strategic and financial plans and advises the Dean

Alumni Leadership Council (ALC)

- Includes SPH alumni, representing the 9,500 alumni of the school
- Provides feedback to Assistant Dean of Development regarding activities, events, curriculum, and student experiences

Education Advisory Board

- Includes alumni, practitioners, and community members
- Provide feedback on pedagogy related to their expertise; makes recommendations concerning the strategic direction and growth of formal and informal educational, professional development, and lifelong learning programs

Career Services and Practicum Office

- In addition to the School's annual survey, the Career Services and Practicum Office gains input (via surveys and informally) from 100+ employers and practicum supervisors who participate in events on campus each year
- Input from employers and practicum supervisors is infused into student advising, Career PREP course, and collaborations with faculty

Practice Advisory Board

- Members include public health practitioners and professionals
- Provides feedback on programmatic directions, SPH community engagement, educational programs, and the work of the Activist Lab

Partnership in Health and Housing (PHH)

- Collaboration of Boston Housing Authority, Boston Public Health Commission, a representative of the PHH Community Committee (described below), and SPH faculty and staff
- Reviews grant and programmatic activities related to public housing initiatives

PHH Community Committee

- Comprised of public housing residents
- Reviews research and programmatic activities in public housing developments; provides feedback and makes recommendations for additional activities that support the life and health of public housing residents

Blackstone Committee

- Membership includes representatives from Blackstone Community Center, community partners (e.g., South End Community Health Center), and Boston University (SPH, School of Social Work, Sargent College of Health and Rehabilitation Sciences, Governmental and Community Affairs),
- Reviews programmatic activities related to BU outreach programs and the Fitness Center, which was paid for and is managed by BU. Outreach programs include Spring Break Challenge, a weeklong program conducted by SPH for graduate students to learn skills in community-based research, and EatWell, a Sargent College program to teach young children cooking skills and health eating.

Life on Albany Committee

- Membership includes staff, faculty, and students representing BU Medical Campus (SPH, School of Medicine, School of Dental Medicine). The committee works with members of the community, including representatives from Boston Healthcare for the Homeless Program and Boston Public Health Commission.
- Identifies and implements programs to educate faculty, staff, and students on the Medical Campus about homelessness, substance use disorder, and mental health concerns affecting populations surrounding the campus

Signature Programming and Dean's Level Events

- SPH hosts 30 programs annually, including Public Health Fora, Dean's Seminars, Diversity and Inclusion Seminars, and Dean's Symposia
- Events are free and open to the public. Invitations to attend the programs (in person and through live streaming) are sent to 14,000 people in the Boston community and beyond
- Programs feature community members, ranging from public health experts to leaders in law, policy, business, and the non-profit sector. The events serve as educational programs, are sometimes integrated with classes, and are a platform to advance the public conversation on health.

A list of current membership of all advisory boards is available as [ERF A1.1.1](#).

2) Describe how the school engages external constituents in regular assessment of the content and currency of public health curricula and their relevance to current practice and future directions.

SPH is dedicated to ensuring that the curriculum addresses pressing public health problems and that students graduate with skills to be able to adapt to future public health challenges. The school engages

external constituents such as practitioners and potential employers in the assessment of public health degrees through membership on the Educational Advisory Board and other topic-specific advisory boards. The feedback collected from these advisory boards is reported back to the necessary stakeholders during regular meetings with program directors, specialization leads, and department meetings.

Curriculum Advisory Boards

The **Education Advisory Board (EAB)** is comprised of alumni and a wide cross-section of practitioners who are committed to ensuring that SPH offers the best educational programs possible. Three times a year, the EAB meets to make recommendations concerning the strategic direction and growth of formal and informal educational, professional development, and lifelong learning programs. EAB members are also consulted on an ongoing basis regarding pedagogy related to their specific expertise. A current list of EAB members is available as [ERF A1.1.1](#).

The school also has topic-specific advisory boards to provide in-depth assessment of specialized degree programs or certificates. For example:

- The **Healthcare Management (CAHME) Steering Committee** oversees the healthcare management certificate program curriculum and operations, ensuring that it is forward-looking and meets student and other stakeholder needs. This committee consists of program alumni and faculty.
- The **Pharmaceuticals External Advisory Board** is comprised of professionals from the pharmaceutical industry who have a passion for public health and are strong advocates of creating academic-industry partnerships, including the facilitation of practicum placements. The diverse set of opinions, skills, and backgrounds from across the pharmaceutical sector helps ensure that the curriculum is addressing the rapidly changing needs of the field. Members serve three-year terms, meet quarterly, and advise the program on job market trends and skills employers seek.
- The **Applied Biostatistics Advisory Board** ensures that the MS program stays competitive and meets the demands of the job market. The board is comprised of biostatisticians working in a variety of industry, academic, and research enterprises who advise the program directors, evaluate the curriculum and learning outcomes, and provide internship opportunities for the research rotation requirement.

In addition to the curriculum advisory groups noted above, formal advisory structures outlined in section F1.1 routinely offer guidance on the development and delivery of the curriculum. For example:

- The **Dean's Advisory Board (DAB)** provided review and input about Master of Science (MS) program proposals, influencing the final selection of programs.
- The **Alumni Leadership Council (ALC)** informed the selection of lifelong learning programs and courses made available through the Population Health Exchange. Alumni input helps select topics such as SAS, communications, and financial management.
- The **Blackstone Committee** was instrumental in the development of Spring Break Challenge. Though not a credit-bearing course, it is an intense learning and practice experience for students, exposing them to real-world application of qualitative research methods (focus groups, informational interviews, community engagement). The experience has spurred a number of students to conduct their practicum at Blackstone or collaborate with Blackstone on an informal basis to implement recommendations made during Spring Break Challenge.
- Feedback from **Life on Albany Committee** has informed several Student Orientation activities, including Practice Plunge, an interactive team-based activity that encourages students to consider policy implications of public health interventions while getting to know the neighborhood surrounding campus.
- Employer feedback provided to the **Career Services and Practicum Office** guides many curricular updates. For example, the integration of data analytic programs and hospital

management tools into coursework was a direct result of feedback from employers via the School Survey and structured interviews conducted by the Career Services and Practicum Office staff. In addition, the Career Services and Practicum Office routinely engages in formal and informal communication with employers about potential Master of Science (MS) programs and has directly informed the School's development of such programs. Final selection of new degree programs is made in concert with feedback from the Dean's Advisory Board.

A list of current membership of all advisory boards is available as [ERF A1.1.1](#).

3) Describe how the program's external partners contribute to the ongoing operations of the school. At a minimum, this discussion should include community engagement in the following:

- a) Development of the vision, mission, values, goals and evaluation measures
- b) Development of the self-study document
- c) Assessment of changing practice and research needs
- d) Assessment of program graduates' ability to perform competencies in an employment setting

(self-study document)

a) Development of the vision, mission, values, goals and evaluation measures

As part of SPH's strategic thinking process the school conducted preliminary interviews in 2015 with public health policymakers, employers of SPH graduates, public health leaders and content experts who provided feedback on how SPH can most effectively inform and shape public discussion and policy debates. In addition to these preliminary interviews, the school held two roundtable discussions which included alumni and industry partners who reviewed and reacted to feedback gathered during early steps of the strategic thinking process. The results of the strategic thinking process formed the basis for the school's strategy map, which articulates the SPH vision, mission, values, goals, and evaluation measures.

b) Development of the self-study document

The preliminary self-study is scheduled for review and discussion with the Dean's Advisory Board, Alumni Leadership Council, Practice Advisory Board, and Education Advisory Board in Spring 2018. Their responses will be integrated into the final self-study in Fall 2018.

c) Assessment of changing practice and research needs

The school engages community members in assessing changing practice and research needs through formal entities identified above, including the Dean's Advisory Board, Practice Advisory Board, and local organizations and resident groups. Additionally, as detailed in criterion [F3](#), the school conducts regular needs assessments of public health practitioners to identify practice needs. The school's faculty also engage in community-based and community-involved research, a goal formally articulated on the school's strategy map and identified in criterion [B5](#).

The Practice Advisory Board has been actively involved in the development of the vision, mission, goals and activities of the newly formed Activist Lab. For example, one of the three core activities of the Activist Lab is advocacy, a decision that was made based entirely on feedback from community collaborators. Advocacy training is now available to students through curricular activities and extra-curricular programming like Spring Break Challenge and Activist Lab fellowships. Both students and community members may also participate in the school's Advocacy Bootcamp, an Activist Lab activity.

Input from advisory groups has also been valuable in setting direction for the school's research activities. For example, the Dean's Advisory Board advised SPH to develop partnerships with those in the private sector whose mission aligns well with the school's mission. Recognizing the changing landscape of health, healthcare, and how individuals communicate, feedback indicated it will "take more than publishing journal articles to change the world." Following this advice, SPH developed partnerships with

Optum Labs, which provides access a rich data resource containing administrative claims, medical records, and self-reported health information for over 200 million people; and Evidation Health, a company working to evaluate and validate a new voice recognition technology for detecting early signals of cognitive decline.

d) Assessment of program graduates' ability to perform competencies in an employment setting is collected on the annual School Survey, both in the form of employer responses about graduates they have hired and asking alumni to reflect on their own abilities. Overall, these surveys demonstrate that the School's curriculum addresses knowledge and skills-based competencies well, indicating that no substantial changes are indicated. However, data from our annual Employer and Practicum Survey as well as national surveys indicates recent graduates may lack professional etiquette skills. To address this, the school developed two new tools to facilitate conversations about professionalism in the workplace with employers: the Professional Practicum Agreement is reviewed and signed by students during the practicum proposal process and a toolkit and forms for practicum supervisors to orient students to their practicum organization and assignment.

As indicated in criterion **B5**, SPH also conducts focus groups during the APHA and ASPPH annual conferences to gather rich qualitative data about alumni experiences in the job market and with new positions.

4) Provide documentation (e.g., minutes, notes, committee reports, etc.) of external contribution in at least two of the areas noted in documentation request 3. (Electronic resource file)

Documentation related to the school's engagement with community members around changing practice and research needs is available as [ERF F1.4.1](#).

The annual school survey asks community members to assess graduates' abilities to perform competencies in an employment setting. Results from the alumni portion of the school survey are available as [ERF B4.2.1](#); employer and practicum supervisor results are available [ERF F1.4.2](#).

5) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (Self-study document)

The school engages a wide range of community members in the ongoing evaluation and assessment of planning and goal setting, curricula, and student outcomes. Feedback is documented and distributed to decision-making committees and bodies so it may be used to inform activities and resource allocations. This diversity of perspectives allows the school to continue to innovate and meet the needs of the populations SPH serves.

The input provided by the school's community members is vital in decision-making on many levels of the school's administration and curriculum. Input is often disseminated school-wide through brief presentations at School Assemblies and department meetings, and these brief presentations may not always provide enough context or detail for faculty and staff who do not sit on the committees mentioned above. Making available community input in a more widely accessible format would clarify the influence of our community members and highlight the importance of engaging them.

F2. Student Involvement in Community and Professional Service

Community and professional service opportunities, in addition to those used to satisfy Criterion D4, are available to all students. Experiences should help students to gain an understanding of the contexts in which public health work is performed outside of an academic setting and the importance of learning and contributing to professional advancement in the field.

1) Describe how students are introduced to service, community engagement and professional development activities and how they are encouraged to participate. (self-study document)

Service is at the heart of the school's mission, and SPH students are exposed to service, community engagement, and professional development activities during each phase of their academic program.

Orientation

New student orientation introduces students to a campus that is at the epicenter of Boston's social and health services. During the Life on Albany Street presentation at orientation, students learn about the rich history of care and social services provided by and adjacent to the BU Medical Campus and are introduced to the concepts of community engagement and social determinants of health. Students then engage in "Practice Plunge," where they conduct observations of health issues that are effecting individuals in the neighborhoods surrounding the school and synthesize these findings in a session led by the Associate Dean for Public Health Practice. As a final orientation activity, students are challenged to put these experiences to use through service learning opportunities offered throughout in and around Boston. Past service learning opportunities took place at the Greater Boston Food Bank; the Pine Street Inn, a homeless shelter; and the Women's Lunch Place, a food assistance program and shelter.

Fall 2017 orientation highlights:

- 320 students participated in new student orientation
- Students became familiar with 32 health-related sites surrounding campus as part of Practice Plunge
- 120 students participated in 16 service activities

The Boston Project

The Boston Project promotes community-based service activities available to SPH students. Co-managed by Graduate Student Life and the Activist Lab, these volunteer activities reconnect students with many of the service organizations from orientation and introduces them to advocacy projects. Examples from the Boston Project include the city-wide Homeless Census and Winter Coat Drive for Immigrant and Refugee Health Program. Monthly service opportunities highlighted on the Boston Project website are promoted through the SPH Today and Student Weekly and Activist Lab email communications. A variety of service opportunities are offered inviting SPH students, faculty and staff to come together in serving the populations at the core of the school's mission. These activities are highlighted below in "Community Service Activities."

Boston Project highlights:

- 12-20 service activities annually
- 10-30 volunteers per activity

Student Organizations

Students are introduced to the school's 14 active student organizations at orientation and student organization fairs held each fall and spring. Student organizations conduct an average of 15 service projects for the local community each year and provide many opportunities for professional development. Under the guidance of Graduate Student Life, student organization officers engage in leadership training and professional development, maintain their own (modest) budget, and practice communication and professional skills to inform their peers and facilitate meetings and activities.

Many of the student organizations conduct service projects; two are highlighted below.

The Student Senate's role is to represent and advocate for the interests of the SPH student body and coordinate and organize school-wide activities. Each fall and spring semester, the Senate plans a signature event, organizes the medical campus blood drive, and participates in National Public Health week. Past service activities have included a Thanksgiving distribution event with the Salvation Army, organizing a team and fundraising for the Walk to End Sexual Violence, and visiting area high schools to teach students about public health. This group represents all students and collaborates with the 13 other student groups at SPH to serve the entire student population.

The Students of Color for Public Health coordinates a number of service and social events, including the Barkley Housing Community Holiday Party. Engaging more than 350 residents, community partners such as Toys for Tots, the Boston Policy Department, the Public Health and Housing Community Committee, Boston Housing Authority, and Boston University Brothers United, the annual holiday celebration provides an evening of dinner, activities, and gifts for residents of the Barkley House, a low-income housing community close to campus.

Student Organization highlights:

- 14 student organizations with approximately 500 students members
- Leadership and professional development training for student leaders
- 15 annual service activities sponsored by student organizations

Activist Lab

The Activist Lab empowers students to serve their communities through advocacy and community engagement by offering advocacy education, awareness building, and funding opportunities. In conjunction with the Leadership and Management core course, the Activist Lab offers three annual Advocacy Primer lab sessions. All MPH students participate in one of these sessions where they learn about the fundamentals of public health advocacy. For students interested in learning more, the Activist Lab also offers day-long intensive "bootcamps" on the topic. Beyond classroom activities, the Activist Lab publishes weekly articles in SPH This Week highlighting service organizations and advocates who are making a difference in the field and in Boston. These articles often feature the work of current students or alumni and demonstrate to students how their peers are translating their education into service. To further encourage students to pursue public health activism, the Activist Lab offers a micro-grant program for student projects through "Activist Bucks", a program described in criterion F2.2.

Activist Lab highlights:

- 20-30 SPH This Week postings annually on public health activism
- 400+ students participate in Advocacy Primer
- 60-70 students participate in Advocacy Bootcamp
- 5-8 micro-grants awarded to student activism projects

Fellowships

Boston University and SPH offer fellowships to graduate students with specific community engagement and social justice qualifications. These students bring a depth of experience to the classroom, informing the experience of their peers. In the past 4 years, SPH students with a demonstrated commitment to social justice and urban studies have received the **Martin Luther King Jr. Fellowship** and the **Whitney Young Jr. Fellowship**, respectively. Community Scholars bring 2+ years of work experience in non-profit settings to the school and continue to work while attending classes part-time. Scholars are recognized annually at the March Dean's Forum where they also participate in discussions on a timely public health issue. Scholars have also hosted professional workshops for peer students enrolled in the program.

SPH offers several fellowships to acknowledge and foster service and community engagement among enrolled students. The Activist Fellows program offers tuition for a 4-credit course to a student who volunteers their professional expertise to a public health service organization one day a week. The LEND Fellowship offers 8 credits and a \$12,000 stipend for a student who demonstrates experience with children with special health care needs (CSHCN) and related policy. The **Public Health Post Fellowship** provides training for master's students in science translation and health journalism. Fellows write an average of 30 pieces annually that are published on PublicHealthPost.com. Fellows receive a \$12,000 stipend for their year of participation.

2) Provide examples of professional and community service opportunities in which public health students have participated in the last three years. (self-study document)

Professional Development Activities

Professional development activities include attendance at ASPPH student leadership annual workshops, department seminars, skill-building trainings and workshops, Dean's Symposia, luncheons and dinners with visiting speakers, networking events, diversity and inclusion seminars, and employer information sessions. A few specific examples of professional development activities follow.

MA Student Health Policy Forum. SPH sends seven students to the annual MA Student Health Policy Forum, a two-day event held at the Massachusetts State House. The forum brings together public health graduate students and leaders in Medicaid, mental health and public health. Students are able to network with elected officials, leading state healthcare policy makers, and advocates; gain insight into the legislative process, health politics, and policy implementation; and engage in conversations with community members.

"Building Healthy Cities: Boston and Beyond" During this day-long Dean's Symposium held at SPH, SPH and GE "healthymagination" partnered to bring together leaders from across private and public sectors to explore new approaches for creating healthier cities. Contextualized in Boston, but taking a global perspective on population health, the day explored how cities, through innovative leadership and data ecosystems, can generate healthy populations. The event was well-attended by SPH students who were encouraged to ask questions and network with the speakers.

Real World Public Health Cambridge. This annual day-long seminar takes place at the Cambridge, MA Department of Public Health and introduces graduate students to a day in the life of a local public health department. Students meet with public health professionals at varying points in their careers to learn more about how they serve the city of Cambridge and their career pathways.

Research presentations. Students are encouraged to submit abstracts for presentations at annual meetings and conferences, such as the APHA annual meeting. SPH students may apply for funding to support their travels and are encouraged to use the school's **Public Health Presentation Skills Program** to prepare.

Community Service Activities

Community service activities also abound. SPH students serve meals for the homeless and those in need at the Pine Street Inn and Rosie's Place; conduct collection drives for winter coats, toiletries, socks, and canned goods; visit local schools to talk about public health as part of National Public Health week; participate in a walk to end violence; and raise funds to support cancer research. A few specific examples of community service activities follow.

Activist Bucks. In 2017, the Activist Lab received funding from Santander Bank to spark creativity, foster innovation, and provide students with seed funding to support their good work and new ideas. The funding is being used, in part, to support Activist Bucks, a program available to students for community-

based projects as part of an academic course. Students can apply for funding up to \$3,000 for community initiatives or projects that assist underserved populations in the city of Boston. Approximately 5-8 projects are selected for funding annually and past project proposals include providing "care packages" for homeless individuals moving into transitional housing, promoting reading among children, and establishing an urban garden.

Annual Boston Homeless Census. SPH organizes a team of students, faculty, and staff from across the Medical Campus to volunteer with the annual Boston Homeless Census. Taking place late at night in January, the canvassing teams are deployed to all Boston neighborhoods to seek out unsheltered people, connect them with emergency shelter services, and if appropriate, ask them survey questions which help build an understanding of the Boston Homeless population.

Water Squad. Taking place three times a week from June through September, SPH students provide free bottles of water to individuals on the corner of Albany Street and Massachusetts Avenue. These are frequently people challenged with addiction, mental health concerns, and homelessness who utilize the services adjacent to SPH. The water squad seeks to create an environment of respect and dignity for the individuals accessing these services.

There is no shortage of professional development and community service activities for SPH students. SPH regularly partners with organizations throughout Boston, including Franklin House for the Elderly, the South End Community Health Center, the Salvation Army, Women's Lunch Place, Rosie's Women's Shelter, Pine Street Inn homeless shelter, Greater Boston Food Bank, Boston Health Care for the Homeless, and the Storm Drain volunteer project. SPH participates in many of the numerous charity walks held in the city each year, including the Women's March, American Heart Association, Mother's Day Walk for Peace, BARCC Walk for Change, AIDS Walk, and the Walk for Hunger. Approximately 5-10 SPH students serve as chaperones for the university's Alternative Spring Break each year, and spend a week mentoring undergraduates to address issues such as environmental protection, children, affordable housing, hunger, education, and public health. SPH students, staff, faculty, and alumni are active participants in Boston University's Global Days of Service, a month-long series of BU-sponsored service activities around the world.

3) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)

Service is a core component of the SPH mission, and students are essential to achieving that mission. Students come to SPH with a desire to serve and the school supports these activities through organized efforts from Graduate Student Life, the Activist Lab, the Career Services and Practicum Office, the Dean's Office, the faculty, and the academic programs. Students may participate in SPH-organized volunteer activities or create their own with assistance from staff in Graduate Student Life and the Activist Lab. Students are notified at least weekly of volunteer and professional development opportunities throughout the year and signing up to participate is often as easy as filling out an online form.

Student responses to the annual School Survey indicate students want more day-time activities but attendance at day-time professional development and volunteer activities is sometimes lacking. Boosting attendance is an ongoing discussion among the offices that organize service and professional development activities. The school's current solution is to ask students to RSVP and remind them of their commitment close to the event date.

F3. Assessment of the Community's Professional Development Needs

The school periodically assesses the professional development needs of individuals currently serving public health functions in its self-defined priority community or communities. Examples could include periodic meetings with community members and stakeholders, formal or informal needs assessments, focus groups with external constituents, surveys that are administered or co-administered to external constituents and use of existing data sets.

1) Define the school's professional community or communities of interest and the rationale for this choice. (self-study document)

The school has three professional communities of interest: (1) the public health workforce, including public health practitioners at state and local governmental agencies and non-governmental organizations, public health practitioners in the private sector, and alumni; (2) community residents; and (3) agencies whose work supports and/or impacts public health.

Specifically:

- **Public Health Workforce**
 - Public health practitioners employed in local and state governmental public health agencies such as health directors, commissioners, health agents, regulatory staff (e.g., health inspectors, environmental health professionals, sanitarians, and code officers), public health nurses, school nurses, and school health personnel.
 - Practitioners employed in domestic or international non-governmental organizations or community-based agencies, such as community health center employees and community health workers.
 - Individuals employed in private industry whose work intersects with governmental public health including medical, pharmaceutical, bio-tech, and environmental health workers focused on drug delivery and value pricing, managing and interpreting community health data and developing healthy built environments among others.
 - SPH alumni. Alumni serving in roles as described above are a specific population of interest for providing continued public health knowledge and skill building opportunities across the career course, including programs focused on public health career advancement and leadership.
- **Communities.** Residents of the city of Boston; cities/towns and regions within Massachusetts; the Commonwealth of Massachusetts as a whole; the six New England states; states around the country; and residents of other countries, including Kenya, Netherlands, Pakistan and Nigeria.
- **Agencies.** Individuals representing local boards of health and health departments, state and tribal health departments, professional public health associations, a range of community-based organizations, and industries (e.g., bio tech, pharmaceutical) whose work supports and/or impacts public health in the target communities. Among these agencies are a number that employ the school's graduates and/or provide and supervise student practicum experiences.

Rationale

Ongoing assessment of the continuing education needs of the individuals described above is essential to ensuring that the school maximizes its resources to deliver meaningful training that strengthens the capacity of and builds competencies within the public health workforce. These resources include:

- The New England Public Health Training Center (NEPHTC), a long-standing Health Resources and Services Administration-funded workforce training cooperative agreement through which the school has built strong relationships with the New England public health workforce charged with providing the ten essential public health services;
- The Local Public Health Institute (LPHI) of MA and School Health Initiative for Education and Leadership Development (SHIELD). Multi-year support from the Massachusetts Department of Public Health (MDPH) provides state-specific training for local boards of health and health

departments in the Commonwealth and for the state's school nurses and other school health personnel, respectively;

- Boston Public Health Commission (BPHC), a long-time partnership with this neighbor institution has resulted in several collaborative training programs and other professional development opportunities; and
- Population Health Exchange (PHX), an SPH initiative launched in 2016, creates ongoing public health lifelong learning opportunities for practitioners and scholars from a range of disciplines. PHX is an innovative space where engineers, urban planners, sociologists, doctors, architects, and others meet to infuse a population health perspective into their thinking and where public health professionals can engage in educational experiences that extend their remit. PHX supports a broad range of educational opportunities both online and in-person.

Using these resources and, in partnership with vested organizations such as the Massachusetts Coalition for Local Public Health, the school has conducted several data collection projects (i.e., surveys, interviews, focus groups, peer school reviews) to identify continuing education needs among professionals and within agencies in the school's target communities. The school also relies on internal and external advisory groups (i.e., groups that represent and understand the needs of professionals and agencies within the school's target communities) to stay abreast of needs and learning opportunities for these constituencies and to provide ongoing development programs. These data collection projects and advisory committees are described in detail below.

2) Describe how the school periodically assesses the professional development needs of its priority community or communities, and provide summary results of these assessments. Describe how often assessment occurs. Include the description and summary results in the self-study document, and provide full documentation of the findings in the electronic resource file.

SPH manages several methods of collecting data about the professional development needs of its priority communities:

- Annual NEPHTC assessment of the training needs of the general target audience (Year 1 of the current grant cycle) and of specific segments, namely Tribal communities and community health workers (Year 2), and Public Health nurses (Year 3).
- As described in criterion B5, the annual School Survey asks about the professional development needs of alumni.
- A 2017 Leadership Development Survey was administered to Massachusetts public and school health professionals who were graduates of public health or other leadership institutes. The survey gathered preliminary information to guide the school as it explores the development of a leadership training program for this target audience.
- A 2017 SHIELD focus groups designed to identify training needs, assess the state of SHIELD resources, and identify gaps in services that are necessary to enhance job performance of school health personnel.
- The New England Public Health Training Center (NEPHTC) Advisory Committee is comprised of academic and non-academic partners and representatives of state and local health departments in each New England state. As the regional lead, SPH works with academic partners throughout New England who carry out each state's training agenda. Each academic partner works with its in-state practitioners who advise the NEPHTC about the training needs in each state. For example, in Connecticut, the Partnership for Public Health Workforce Development serves as the in-state advisory committee. SPH is charged with overseeing and prioritizing the overall work of the NEPHTC to address the needs in the entire region.
- The SHIELD Advisory Board is comprised of school nurses, physicians, public health professionals, school administrators, and government officials from the Department of Elementary and Secondary Education and Department of Public Health. The board convenes twice annually to advise SHIELD on its work.

- As described in criterion F1, community representatives on the Practice Committee provide input about the training needs of local public health practitioners. They also provide insight into how the MPH curriculum can adapt to the changing needs of the workforce in order to better equip graduates with the knowledge and skills they need.
- The Blackstone Committee, a working group described in criterion F1, includes members of organizations that serve the local community. As such, they advise about the training needs of community members who serve as peer mentors and advocates.

SPH contributes to local and national assessments, for example:

- The DelValle Institute for Emergency Preparedness convened a group of practitioners in 2014 to gather feedback about the highest priority performance challenges among health and medical coordinating coalition members to be addressed through training and education, and solicit suggestions for ways to deliver training and education in a format that is accessible to the greatest number of these stakeholders. These workshops resulted in the 2015 final report entitled *Shaping the Future of Statewide Training: An Opportunity to Guide Preparedness Training and Education across the Commonwealth*. The results were used to prioritize training delivery and development and informed the MDPH approval process to use emergency preparedness funds to attend conferences and trainings that SPH manages through the LPHI, which it operates through a contract with MDPH.
- The SPH Director of Practice Programs worked with the Massachusetts Coalition for Local Public Health (CLPH) to study local public health competencies in Massachusetts, resulting in the 2010 *Massachusetts Competency Report*. This report drove the creation of an online learning system at SPH that provides over 50 awareness-level trainings covering regulatory program areas such as food safety, housing, and wastewater and cross cutting competencies such as legal issues and emergency preparedness. This learning system is important infrastructure for the delivery of training through the NEPHTC and LPHI.

Faculty and staff in the Activist Lab are active participants in professional development advisory groups, including:

- MA Health Officers Association: MPHA is the professional organization that represents health officers and directors at each of the local boards of health and health departments in the Commonwealth. The SPH Director of Practice Programs is past president and ex-officio on their Executive Committee, and co-chairs the education committee. Additionally, the SPH staff member who serves as the LPHI manager chairs the emergency preparedness track for the annual education conference.
- The Local State Advisory Committee (LSAC) is an advisory body to the Commissioner of the MDPH on public health emergency preparedness. Since 2013, the 30-member LSAC has served as the Advisory Committee for the LPHI, which reports to it monthly in writing and three times a year in person. Additionally, the LPHI works closely with LSAC's education subcommittee to inform its program planning.
- Massachusetts Association of Public Health Nurses (MAPHN). The LPHI manager works closely with the executive committee of MAPHN to identify areas of collaboration, and to increase awareness and use of the educational programs available through the LPHI to meet the needs of MAPHN members.
- MA Department of Education Working to Improve Sexual Health Education in Schools (WISHES) Health Advisory Council. The Director of SHIELD is a member of this council, which seeks to build the capacity of Massachusetts school districts to advance adolescent health programs and policies.

Data collection tools, results, reports, agendas and minutes are available as [ERF F3.2.1](#).

3) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)

Tremendous diversity exists within the school's target audiences - the types/roles of professionals, years of professional experience, geographic location, and the staffing and resources available to them to perform their jobs. The school faces a two-fold challenge in conducting needs assessments with such a diverse group: (1) no single organization represents the needs of all of the school's target audience, and (2) no comprehensive mechanism (e.g., listserv, directory) exists for reaching all individuals within the target audience. SPH draws from multiple data collection efforts and the expertise of multiple advisory bodies to understand the needs of various segments within its target communities, which, while labor-intensive, allows for a nuanced understanding of the training needs of each portion of the target audience. Such understanding enables the school to effectively prioritize its resources to deliver the most relevant public health content via the most efficacious means (e.g., distance learning, classroom training, and blended trainings). Although multiple sources of information are useful for understanding the needs of the diverse target audience for the school's continuing education efforts, the lack of a centralized location for storing these data makes data-sharing across the school challenging.

F4. Delivery of Professional Development Opportunities for the Workforce

The school advances public health by addressing the professional development needs of the current public health workforce, broadly defined, based on assessment activities described in Criterion F3. Professional development offerings can be for-credit or not-for-credit and can be one-time or sustained offerings.

1) Describe the school's process for developing and implementing professional development activities for the workforce and ensuring that these activities align with needs identified in Criterion F3. (self-study document)

The school uses the needs assessment results gathered via the processes described in criterion F3 and shares them with the relevant advisory committees, organizations, and individuals, also described in criterion F3. Along with guidance from advisory committees, the Career Services and Practicum Office, alumni, community partners, and funders, the needs assessments are used to identify training priorities that become the basis of work plans for four lifelong learning initiatives:

- **Local Public Health Institute of Massachusetts (LPHI)** - a Massachusetts Department of Public Health-funded training center with a mission to improve public health and preparedness capabilities and the health of the residents of the Commonwealth by creating, implementing, and sustaining workforce development activities for local public health and other public health system partners.
- **New England Public Health Training Center (NEPHTC)** - a Health Resources Services Administration-funded training center with a mission to strengthen the technical, scientific, managerial, and leadership competencies of the current and future public health workforce in New England to ensure that the region has the capacity to deliver high quality essential public health services. NEPHTC is part of a national network of ten training centers.
- **Population Health Exchange (PHX)** - a broad SPH lifelong learning program that addresses the identified need for ongoing professional education in public health. PHX is a resource hub and continuing education provider that offers opportunities for learners to engage with experts in various fields and to build skills to address emerging population health trends.
- **School Health Institute of Education and Leadership Development (SHIELD)** - a Massachusetts Department of Public Health-funded training center with a mission to update the clinical, management, and leadership skills of school nurses and other school health personnel who develop and manage comprehensive school health service programs in Massachusetts.

The four initiatives build on the school's strengths (e.g., subject matter expertise, instructional design, curriculum development, and technical expertise) and leverage opportunities (e.g., funding sources, partnerships with other organizations, and collaboration among community members) to maximize resources in the development and delivery of trainings.

Offerings are varied and include strong evaluation components and quality improvement plans. Most are free of charge or very moderately priced. They are customized for the target audience, and may:

- provide continuing education credits for certain credentials,
- provide options for either a certificate of completion or audit only, or
- provide certificates in specialty areas such as core public health principles and emergency preparedness; and
- be enduring (online and available 24/7/365),
- be online (self-paced or live),
- be face to face, or
- be blended (a combination of online and face to face).

With guidance from advisory committees and stakeholders, trainings provide resources, tool kits, train-the-trainer materials, custom programs, and networking opportunities.

2) Provide two to three examples of education/training activities offered by the school in the last three years in response to community-identified needs. For each activity, include the number of external participants served (i.e., individuals who are not faculty or students at the school). (self-study document)

With these four initiatives, SPH offer scores of education/training courses and have trained thousands of members of the current public health workforce in the past three years, as detailed in Table F4.2.1. Three examples, highlighting work in different delivery modes follow.

Online

On Your Time is LPHI's signature trainings series. It was created to meet the awareness-level training needs of local boards of health and health department staff across Massachusetts. LPHI's advisory committee prioritized the program and cross-cutting competencies identified in the 2010 Massachusetts Competency Report. On Your Time now includes 50 self-paced e-learning that encompass regulatory topics (i.e., food safety, housing programs, and wastewater management) as well as other public health topics (e.g., disease case management, surveillance of infectious diseases, and emergency preparedness). Each e-learning is accompanied by a document that summarizes key points and a facilitator's guide that provides suggestions and tips on how to conduct the online training in a face to face environment. On Your Time trainings are available 24/7/365 and may either be audited or registered for a certificate of completion. When auditing, participants may easily access the training (no password required) but do not receive a certificate of completion. Each year, these trainings receive thousands of hits (6,485 in FY16, 8,211 in FY17 and 4,466 for the first half of FY18). Registered participants receive a certificate of completion. These participants complete a pre-test, a post-test, and an evaluation, and may earn continuing education credit. On Your Time was recognized as a Model Practice by the National Association of County and City Health Officials in 2013.

Face to Face

PHX held its inaugural Summer Institute in June and July 2017. The **Summer Institute** will be an annual offering to address specific skill development in topics such as monitoring and evaluation, data visualization, online fundraising, strategic communications, and public health advocacy. PHX also held its inaugural **Winter Institute** in January 2018 with a short, immersive program on turning data into action. SHEILD offers many face to face trainings that meet critical workforce training requirements. For example, to be licensed in Massachusetts, the Department of Elementary and Secondary Education requires school nurses to complete three **introductory courses on school health**. A 2016 Massachusetts legislative decision requires public schools to engage in substance use screening and education; SHEILD offers training for the introductory topics and for a validated screening tool (**SBIRT** – Screening, Brief Intervention, and Referral to Treatment).

Blended Trainings

In response to workforce concerns about the time and travel required to attend trainings delivered in face to face formats, SPH's three training centers have developed blended courses that combine classroom and online training (webinars and/or e-learning) for high priority subjects. The courses can span many months and attract learners from a variety of workforce agencies and geographic locations.

Highlighted are:

- **Foundations for Local Public Health Practice**
- **Managing Effectively in Today's Public Health Environment**
- **Medication Administration and Delegation**
- **Massachusetts Public Health Inspector Training: Housing** (MA PHIT Housing)

The courses have rigorous evaluation plans, including Kirkpatrick level 3, described below, which inform continuous quality improvement.

By investing in up front curriculum development, the blended model allows for easy sharing and adaptation of training materials outside of Massachusetts. In 2016, SPH's NEPHTC partner, the University of Maine, adapted the Massachusetts management curriculum and ran their own seven topic course. To increase the reach of this course, NEPHTC created an online **Train-the-Trainer Tool Kit** for the management curriculum and is exploring expanding these types of tool kits for other training curricula.

Three of these blended courses have received state and national recognition:

- Managing Effectively in Today's Public Health Environment: 2017 National Network of Public Health Institutes Network Member Impact Award
- Foundations for Local Public Health Practice: 2012 Best Practice Award from Association of Schools of Public Health and 2006 Vartkes "Vic" Karaian Award, Massachusetts Environmental Health Association
- MA PHIT: 2012 Model Practice, National Association of County and City Health Officials and 2011 Innovative Award, Massachusetts Environmental Health Association

Table F4.2.1. External participants served by SPH's workforce development activities

Program Examples	FY 2016 # Served	FY 2017 # Served	FY 2018 # Served ³⁵
Online			
On Your Time Certificates	878	887	388 (through Dec. 2017)
Face to Face			
Introductory Courses, SBIRT	³⁶	3642	3000 (estimated through June 2018)
PHX Institutes	³⁷	130	18 (through Jan. 2018)
Blended			
Foundations for Local Public Health Practice	30	30	30
MA PHIT Housing	60	60	60
Managing Effectively in Today's Public Health Environment	26	60	60
Medication Delegation and Administration	³⁸	In development	140

3) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)

The school has a strong professional development program with extensive offerings to advance the public health competencies of the current public health workforce, alumni, and individuals looking to collaborate with public health practitioners. Trainings are offered in a variety of formats, including online, face to face and blended, so they can be completed by professionals where and when it is convenient

³⁵ Data will be updated for the final self-study.

³⁶ The school health institute moved to SPH in FY2017.

³⁷ PHX launched its first course in FY2017.

³⁸ The school health institute moved to SPH in FY2017.

for them and in a method that best meets their learning needs. Many trainings are free or very low cost and include options to audit or complete for a certificate. The certificate option often provides continuing education credits for a variety of professional credentials such as Registered Nurse (ANCC-approved), Registered Sanitarian, Registered Environmental Health Professional, Certified Health Officer, and Certified in Public Health. The On Your Time series include a facilitator's guide, which allows for classroom delivery if that is the preferred training method and a Train the Trainer tool kit was developed to encourage sharing and dissemination of a management curriculum.

For our professional development offerings, the school implements evaluation strategies based upon the Kirkpatrick Training Evaluation Model, which suggests that training should be evaluated on four levels:

Level 1	Trainee satisfaction with and engagement in training, and perceived relevance of training to the trainee's job
Level 2	Trainee acquisition of intended knowledge, skills, and attitudes, as well as confidence about and commitment to use training content
Level 3	Trainee application of what was learned in training when trainee is back on the job
Level 4	The degree to which targeted outcomes or desired impact occur as a result of critical on the job behaviors that result from training

Each offering is evaluated at levels 1 and 2 at the time of delivery. In order to evaluate at level 3, the school implemented pilot efforts to assess the impact of some of its trainings several months after program completion to understand how the offerings impact participants' workplace performance. A survey tool has been developed for level 3 and is being implemented for the blended courses. SPH is in discussions about piloting a level 4 tool. All evaluation findings (i.e., levels 1 and 2, and 3 when available) are used to develop quality improvement plans. PHX offered its first course in FY2017 and is focusing on understanding the base audience by carefully reviewing program evaluations, follow-up assessments, and career development and industry trends to develop programming.

Providing professional development opportunities for the workforce is not without challenges. The three training centers (LPHI, NEPHTC, and SHIELD) are dependent on grant funding. Without grant support, the trainings would have to be discontinued or users would have to pay substantial fees in order to access training. For example, the blended management course has operated with a registration fee ranging from \$0 to \$100 per person. Without grant funding, the registration fee would be closer to \$4,000, which is cost prohibitive for the target audience of local board of health officials in Massachusetts.

Also challenging is that each training center uses a different learning management system so users require a different account for each center. The systems do not 'talk' to each other so data cannot be shared across systems. Adding to the complexity, the local performance sites that are partners in NEPHTC (i.e. Yale, University of New England, and University of Vermont) use their own learning management systems, supported by their state health departments, which sometimes causes confusion for users. The school is exploring ways to combine systems or create methods of data sharing but has not found a solution at this time.

Finally, to date, a process for evaluating the school's professional development programs for level 4 impact does not exist and the school is only beginning to implement the new level 3 tool. Accessing appropriate health and population-level outcomes data for evaluative purposes and controlling for a number of confounding variables that may influence such outcomes are the primary challenges associated with level 4 training evaluation.

G1. Diversity and Cultural Competence

Recognizing that graduates may be employed anywhere in the world and work with diverse populations, schools provide a learning environment that prepares their students with broad competencies regarding diversity and cultural competence, within the context of their own institutions' mission statements.

Aspects of diversity may include age, country of birth, disability, ethnicity, gender, gender identity, language, national origin, race, historical under-representation, refugee status, religion, culture, sexual orientation, health status, community affiliation and socioeconomic status. This list is not intended to be exhaustive.

Cultural competence, in this criterion's context, refers to competencies for working with diverse individuals and communities in ways that are appropriate and responsive to relevant cultural factors. Requisite competencies include self-awareness, open-minded inquiry and assessment and the ability to recognize and adapt to cultural differences, especially as these differences may vary from the school's dominant culture. Reflecting on the public health context, recognizing that cultural differences affect all aspects of health and health systems, cultural competence refers to the competencies for recognizing and adapting to cultural differences and being conscious of these differences in the school's scholarship and/or community engagement. Each school further defines these terms in its own context.

The school defines systematic, coherent and long-term efforts to incorporate elements of diversity. Diversity considerations relate to faculty, staff, students, curriculum, scholarship and community engagement efforts. Schools accomplish these aims through a variety of practices including incorporation of diversity and cultural competency considerations in the curriculum; recruitment and retention of faculty, staff and students; policies that support a climate of equity and inclusion, free of harassment and discrimination; and reflection in the types of scholarship and/or community engagement conducted.

G1.1. A list of the school's self-defined, priority under-represented populations; an explanation of why these groups are of particular interest and importance to the school; and a description of the process used to define the priority population(s). These populations must include both faculty and students and may include staff if appropriate. Populations may differ among these groups. (self-study document)

The Boston University School of Public Health community believes that fostering diversity and inclusion is essential to fulfilling **the mission** as an academic public health institution, a mission firmly rooted in social justice. The school's commitment to diversity and inclusion strengthens the community while elevating the ability to eliminate health disparities locally, nationally, and globally. SPH maintains and celebrates this commitment through excellence and innovation in research, education, and service.

While the school's work is global, SPH has a commitment to the local greater Boston community. The work of the faculty, staff and students reflects these racially and socioeconomically diverse communities: faculty engage in community-based research with Bostonians and serve on health boards of Cambridge, Weymouth, and many surrounding towns, and the majority of students volunteer or conduct practica in the greater Boston area. The school strives to bridge racial, cultural, and economic gaps and work to improve the health of all those living in Greater Boston.

In Fall 2015, SPH renewed its commitment to the greater Boston community by selecting Hispanic/Latinos and African Americans/Blacks as priority under-represented populations. There were two primary reasons for selecting these populations:

1. The proportion of people of color is growing in greater Boston, with African Americans/Blacks comprising the largest population of color in Boston and Latinos being the fastest growing

minority population in Boston.³⁹ As urban sprawl increases, these population increases are also seen across the Greater Boston area.

2. As demonstrated in tables G1.1.1. and G1.1.2., the proportion of SPH community members from the under-represented populations lagged far behind the Greater Boston area. Some, but not all, of this gap may be attributed to the statistics for Greater Boston including residents of all ages while SPH students and faculty are all over 18 years old.

The commitment to these populations was reaffirmed in 2018 after consulting national data available from the Association of Schools and Programs in Public Health (ASPPH) and the 2016 Enrollment and Employees in Postsecondary Institutions report issued by the National Center for Education Statistics (NCES). While the gap is smaller, SPH also lags behind other schools and programs of public health and graduate students and faculty at private, nonprofit institutions.

Table G1.1.1. SPH students and comparison populations who identify as Latino or African American

	SPH Students, Fall 2015	Greater Boston, 2010 ⁴⁰	ASPPH Students, 2015 ⁴	NCES, 2016 ⁵
African American/Black	8%	24%	10%	10%
Hispanic/Latino	6%	18%	9%	8%

Table G1.1.2. SPH faculty and comparison populations who identify as Latino or African American

	SPH Faculty, Fall 2015	Greater Boston, 2010 ³	ASPPH Faculty, 2015 ⁴	NCES, 2016 ⁵
African American/Black	3%	24%	6%	6%
Hispanic/Latino	1%	18%	7%	4%

The selection of the under-represented populations was made by the school's Governing Council. As described in criterion **A1**, the Governing Council is comprised of the Assistant Dean for Diversity and Inclusion, the school's department chairs and center directors, the Associate Deans, and the Dean, all of whom are essential for recruiting and retaining diverse faculty, staff, and students.

G1.2. A list of goals for increasing the representation and supporting the persistence (if applicable) and ongoing success of the specific populations defined in documentation request 1. (self-study document)

By Fall 2018, the school hopes to meet the following recruitment goals:

1. Increase proportion of African American/Black students to 10%

³⁹ City of Boston. New Bostonians Demographic Report. cityofboston.gov/newbostonians/pdfs/dem_report.pdf. Accessed November 23, 2015.

⁴⁰ American Fact Finder. <http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF>. Accessed November 23, 2015.

⁴ Association of Schools and Programs of Public Health, 2015. <https://data.aspph.org>. Accessed January 29, 2018.

⁵ Ginder SA, Kelly-Reid JE, Mann FB. (2017). Enrollment and Employees in Postsecondary Institutions, Fall 2016; and Financial Statistics and Academic Libraries, Fiscal Year 2016: First Look (Provisional Data) (NCES 2018-002). U.S. Department of Education. Washington, DC: National Center for Education Statistics. Retrieved January 29, 2018 from <http://nces.ed.gov/pubsearch>.

2. Increase proportion of Hispanic/Latino students to 7%
3. Increase proportion of African American/Black faculty to 8%
4. Increase proportion of Hispanic/Latino faculty to 2%

The school's assessment is that the most effort in this area needs to be in recruitment of students and faculty in these underrepresented groups. The reasoning rests on the following.

First, graduation rates for African American/Black students and Hispanic/Latino students are 94% and 91% respectively and are in line with the school's overall graduation rate. Thus, the school does not seem to have significant challenges with the retention of underrepresented populations.

Second, African American/Black faculty and Hispanic/Latino faculty have high 5-year retention rates; SPH does not perceive to have difficulty in this area. For example, current URM faculty have been at SPH for an average of 11 years (range: 4 to 17 years). Overall, SPH has very small numbers of priority underrepresented faculty, and of those who left over the past 4 years, the average length of retention was 7 years (range: 1 to 21 years).

Thus, the school's efforts are primarily on recruitment of priority underrepresented faculty and students.

G1.3. A list of actions and strategies to advance the goals defined in documentation request 2 and a description of the process used to define the actions and strategies. The process may include collection and/or analysis of school-specific data; convening stakeholder discussions and documenting their results; and other appropriate tools and strategies. (self-study document)

A list of actions and strategies to advance the school's diversity and inclusion goals are in Table G1.3.1. As detailed in SPH's December 2015 [11-point plan](#) and [Dean's note](#), these strategies are informed by the 2012 Cultural Competence Education for Students in Medicine and Public Health report; feedback from a listening tour conducted with faculty, staff, and students by the Assistant Dean for Diversity and Inclusion in Fall 2015; and the strategic thinking process that led to the strategy map. These actions and strategies were developed by the Assistant Dean and the Dean working with the school's Governing Council.

Table G1.3.1. Actions and Strategies to Advance Diversity and Inclusion Recruitment Goals

Goal	Strategies
1. Increase proportion of African American/Black students to 10%.	<ol style="list-style-type: none"> A. Increase the proportion of MPH, MS, and doctoral Admissions Committee members who have undergone anti-bias training B. Provide additional scholarship funds to increase the number of Emerging Scholars funding opportunities C. Expand the Select Scholars program by increasing the number of contracts with historically Black colleges and universities (HBCUs)
2. Increase proportion of Hispanic/Latino students to 7%	<ol style="list-style-type: none"> A. Increase the proportion of MPH, MS, and doctoral Admissions Committee members who have undergone anti-bias training B. Provide additional scholarship funds to increase the number of Emerging Scholars funding opportunities C. Expand the Select Scholars program by increasing the number of contracts with Hispanic-Serving Institutions (HSIs)

3. Increase proportion of African American/Black faculty to 8%.	<p>A. Increase the number of faculty positions posted on listservs and professional organizations targeted toward African American/Black and Latino faculty and PhDs</p> <p>B. Leverage Dean’s Fund to target URM faculty who represent “opportunity hires”</p> <p>C. Engage African-American/Black faculty as visiting scholars</p>
4. Increase proportion of Hispanic/Latino faculty to 2%.	<p>A. Increase the number of faculty positions posted on listservs and professional organizations targeted toward African American/Black and Latino faculty and PhDs</p> <p>B. Leverage Dean’s Fund to target URM faculty who represent “opportunity hires”</p> <p>C. Engage Hispanic/Latino faculty as visiting scholars</p>

SPH has invested in a variety of recruitment and pipeline efforts, building on and furthering existing work by the Admissions Office and faculty recruitment efforts. These new and revitalized efforts results seek to address immediate needs as well as create long-term sustained change.

- The Select Scholars program is a new SPH effort, launched at the beginning of 2016, to partner with HBCUs, HIS’s and other undergraduate institutions to enroll students interested in pursuing public health. Conceptualized as an “outward facing 4+1 program”, the program engages rising juniors to take targeted SPH classes during the summer, and upon successful completion of coursework, are offered conditional admission to SPH upon completion of their undergraduate degree.
- Members of the Admissions Committee regularly attend admissions fairs at HBCUs, HIS’s, and the Annual Biomedical Research Conference for Minority Study (ABRCMS), and engage with the Gates Millennial Scholars program.
- In addition to efforts to secure T32 funding for doctoral scholars, the faculty have begun to pursue minority supplements linked to existing NIH funding and applications for targeted funding that specifically is concerned with issues of diversity and inclusion (faculty, students, and staff). This effort was aided by a Q&A in February 2017 with P. Kay Lund, director of the Division of Biomedical Research Workforce, Office of Extramural Programs, Office of Extramural Research, National Institutes of Health. SPH continues to investigate best practices for recruitment of eligible candidates and submission of successful applications.
- In Fall 2017, the SPH Faculty Senate formed a task force to increase recruitment and hiring of URM faculty. Working directly with the Assistant Dean for Diversity and Inclusion, the task force is reviewing faculty hiring processes at the departmental level to identify and strengthen best practices and to intervene on potential barriers to diversity.
- As detailed in the school’s appointments and promotions guidelines, faculty searches follow a defined process that includes each member of the search committee attending bias awareness training and a discussion about recruiting faculty from priority under-represented populations with the Assistant Dean of Diversity and Inclusion at the initial search committee meeting.
- Boston University recently hired its first ever university-wide Associate Provost of Diversity and Inclusion (APDI) whose primary charge includes increasing the number of URM faculty on both campuses. SPH expects to work closely with the APDI and anticipate that there will be increased resources available for URM recruitment and hiring.

As with the school’s strategy map and evaluation plans, the diversity and inclusion goals are evaluated and adapted as needed. Progress toward achieving the strategies is examined each fall by the school’s Governing Council and adapted with input from students, faculty, and staff.

Progress toward achieving these strategies is detailed in Table G1.5.1.

G1.4. A list of the actions and strategies that create and maintain a culturally competent environment and a description of the process used to develop them. The description addresses curricular requirements; assurance that students are exposed to faculty, staff, preceptors, guest lecturers and community agencies reflective of the diversity in their communities; and faculty and student scholarship and/or community engagement activities. (self-study document)

Creating a culture of inclusion and a culturally competent environment at SPH is a key pillar of the school's **11-point plan**, as detailed below. These activities are intentionally interwoven, with many opportunities available to faculty and students and reflected in the curriculum.

Targeted teachings

Faculty must lead discussions around issues of diversity and inclusion, and present a curriculum that reflects the students and communities served by SPH. Targeted teachings aim to build awareness among faculty and students of their implicit biases. Associated actions and strategies:

Bias training. Bias training is designed to help participants become more adept at productively raising and managing difficult topics (e.g., race, class) that arise during class discussions and during the work day. The school's Governing Council participated in bias training during the 2015 academic year; 104 (56%) faculty and 118 (52%) staff participated during 2016 and 2017. The school continues to offer 1-2 sessions per semester to accommodate new faculty and staff and those who were previously unable to attend.

SPH Reads. As part of SPH Reads, the school's "one school-one book" program, all incoming students are mailed a copy of the selected text over the summer. SPH Reads selections are intended to highlight contemporary issues of diversity and inclusion and provide a common framework for both faculty and students enabling further classroom discussion of these topics. During orientation, a required activity for all degree candidates, book discussions are led by core course faculty members. In February 2017, as part of the 2016-17 SPH Reads program, the school welcomed members of the family of Henrietta Lacks, the subject of the best-selling book, *The Immortal Life of Henrietta Lacks* by Rebecca Skloot. In the October 2017, the 2017-18 SPH Reads program welcomed author Michael Patrick MacDonald to the school to discuss his award winning book, *All Souls, A Family Story from Southie*. During their SPH Reads visit to campus, authors give a keynote presentation that is open to the entire academic community, and lead smaller book discussions with SPH faculty and students.

Faculty workshops. Faculty are invited to participate in workshops designed to deepen their understanding of inclusion and manage challenges in the classroom. For example, Dr. Kermit Crawford led a faculty workshop titled "Navigating Difficult Conversations" in May 2017 that focused on identifying micro aggressions and difficult dialogues on race. The workshop discussed generational differences, how to improve communication, and deescalating heated discussions. Since August, Dr. Cozier and Dr. Godley have been leading a 2-hour "Difficult conversations in the Classroom" for all faculty as part of the school's Education Department retreat. Less lecture in structure, this workshop allows discussion of specific faculty experiences allowing for peer and instructor feedback. Slides from this workshop are available as **ERF G1.4.1**.

Faculty mentoring. As described in criterion **E4**, the school has a formal mentoring program that engages faculty in their first three years of service; all SPH faculty are invited to participate. While mentoring is necessary for fostering a new generation of faculty of all backgrounds, the need for mentoring is especially important for underrepresented minority faculty who must learn how to successfully navigate in a majority culture. Mentoring contributes to an inclusive environment by preparing faculty to effectively manage their career success by learning about the process, responsibilities, and qualifications necessary for promotion including opportunities to collaborate with others, training in leadership skills, and negotiation for protected time.

Curricular modifications

Orientation. To prepare students for the challenging discussions and issue they will face as future public health practitioners, we host two 90-minute sessions on race, class, and social justice as part of orientation. These sessions can opportunities for students to discuss their fears and concerns about approaching the topics such as race and class during the academic year, including in class. Programming includes an introduction to the data and framework of why social determinants (e.g., race, class) are critical components of public health; 2) exercises for students to self-identify their own privileges and biases in a safe and supportive environment; and 3) Introduction to resources for learning and developing professional skills around navigating issues of diversity and inclusion while on campus and within the community.

Core Curriculum. Key themes of race, class, and social justice are woven throughout the core curriculum in order to expand the examples of frameworks used to consider health outcomes. For example, in Leadership and Management for Public Health (PH718) students are required to reflect on their own identity/ies (e.g., gender, race, class, ability, religion, sexual orientation) and how it influences social advantages and disadvantages, and conscious and/or unconscious biases. In Individual, Community, and Population Health (PH720), students are required to define and discuss individual, environmental, structural, and social determinants of global health, including cultural and environmental factors that underlie gender, racial, ethnic, and class-based disparities in health; describe and use a rights-based approach to address issues of social and environmental injustice, to analyze public health problems, and to inform the design, implementation, and evaluation of public health policies and programs; and to draw upon the social, environmental, and behavioral sciences to use various conceptual frameworks, including the life course approach and socio-ecological models, to identify and define public health problems, assess the determinants of those problems, and develop and evaluate public health interventions that aim to ameliorate those problems.

Guest Lecturers. Throughout their degree coursework, students are exposed to guest lecturers from faculty and staff from across the Boston University campus, outside academic institutions, community agencies, and community members.

Practicum. In addition, students have the opportunity to further engage with many of these speakers and agencies in the form of a practicum where they receive hands-on public health experience and mentorship. A 240-hour practicum experience is required of all MPH students.

Extra-curricular activities and events

Extra-curricular strategies ensure the recruitment, support, and retention of a diverse community of faculty, students, and staff.

Student Mentoring. SPH is committed to mentoring all students through their degree program and the transition into public health careers. The **Student Alumni Mentoring Program (StAMP)**, launched in Fall 2016, connects MPH students with SPH alumni mentors. StAMP aims to provide students with professional guidance while providing alumni a way to remain engaged with their university. The program leverages the SPH global alumni network to the end of improving the student experience at SPH, furthering SPH's commitment both to student development and alumni engagement. Thirty students participated during the 2016-17 academic year.

Signature programs. Signature programs are designed to assure that students are exposed to faculty, staff, guest lecturers, and community agencies that reflect the wider diversity of our surrounding community, with the goal of enhancing the learning experiences of SPH students and others at Boston University. The school weaves topics related to diversity and inclusion through existing fora, particularly the Dean's Seminar Series, the Public Health Forum Series, and the Diversity and Inclusion Seminar Series, which is explicitly designed to highlight diversity and inclusion. For example, in October 2016, Drs. Linda Clayton and W. Michael Byrd, spoke to the SPH community on "Racial and Ethnic Disparities

in Health and Health Care: Historical and Contemporary Issues". Drs. Clayton and Byrd are internationally recognized authorities on racial and ethnic disparities, and authors of the two-volume Pulitzer Prize-nominated book series, *An American Health Dilemma*. The April 2017 Dean's Seminar highlighted a special issue of *The Lancet* which featured five papers on the topic of income inequality by welcoming several of the issue's authors for a discussion.

University programming and events supplements SPH programming and events and include events hosted by the Howard Thurman Center, the College of Arts and Sciences (e.g. the Department of African American Studies), and other schools (e.g. Law, Social Work, Theology) on the Charles River Campus. SPH encourages students, faculty, and staff to participate in these events.

Student Organizations and Affinity Groups

The school has created and supports spaces within SPH to enable students to hold conversations on diversity and inclusion. These affinity groups have a clear sense of purpose, including mission statements that contribute to the larger mission and core values of the school. Student groups, including Students of Color for Public Health, International Student Organization, and the SPH LGBTQ Alliance, provide a safe space for members to debrief, perform community service, and sponsor cultural activities. Another group, the Racial Justice Talking Circle (RJTC) is open to all SPH students, faculty, and staff, and hosts weekly sessions where participants discuss current events and other topics related to social justice.

A full list of activities designed to create, foster, and maintain a culturally competent environment are available as [ERF G1.4.2](#).

G1.5. Quantitative and qualitative data that documents the school's approaches, successes and/or challenges in increasing representation and supporting persistence and ongoing success of the priority population(s). The data must include student and faculty (and staff, if applicable) perceptions of the school's climate regarding diversity and cultural competence. (self-study document)

Quantitative data on the school's progress towards increasing representation and ongoing success of recruiting faculty and students from priority populations is detailed in Table G1.5.1.

As of Fall 2017, African American/Black students and Latino/Hispanic students represent 7% and 9% of the student body, respectively. This represents increases a 1% decrease of African American/Black students and 3% increase in Latino/Hispanic students since 2015. These mixed results are both disappointing and encouraging as they emphasize the need for continued efforts to increase URM representation, as well as the positive results of effectively implementing the strategies outlined throughout this criterion, including anti-bias training of admission committee members, and increased scholarship funding through the Emerging Scholars Program.

The school focused on three faculty recruitment strategies and, while the school has been implementing the strategies, progress toward meeting recruitment goals has been slow. In some ways this is not surprising—the school certainly did not expect to achieve these goals overnight but is hopeful that SPH now has a clear strategy map with diversity goals at front and center which will keep the school focused on these goals for years and decades to come.

The first faculty recruitment strategy is to reach out to minority-centered organizations, including the Multicultural Affairs Committee (MAC) of the American College of Epidemiology (ACE); Spirit of 1848 listserv; the American Public Health Association (APHA); the Society for Epidemiology Research (SER) Diversity Committee; the Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS); National Conference on Race and Ethnicity in American Higher Education (NCORE). Beginning in Fall 2017, the Assistant Dean for Diversity and Inclusion will attend the first meeting of each

faculty search committee to discuss best practices for inclusive searches. Reaching out to minority-centered organizations will be one strategy discussed.

There is significant overlap between the second and third recruitment strategies. The SPH Dean's Fund has reserves for an "opportunity hires" program, which seeks to recruit talented underrepresented minority faculty on a rolling basis. The school has successfully implemented the first portion of the opportunity hiring process which is to engage potential hires through the visiting faculty scholars program, hosting researchers during their sabbaticals from their home institutions, and invitations to present in our Dean's Seminar Series and Diversity and Inclusion Seminars, the school's third faculty recruitment strategy. These efforts are both structured and ongoing, as indicated in Table G1.5.1.

Table G1.5.1. Quantitative data on achieving diversity strategies

Goal	Strategies	Activity	Year 1 (2016)	Year 2 (2017)	Year 3 (2018)	Target (2018)
1. Increase proportion of African American/Black students to 10%	A. Increase proportion of MPH Admissions Committee members who have completed bias training	Bias training	63%	84%		100%
	B. Increase proportion of MS and Doctoral Admissions Committee members who have completed bias training	Bias training	50%	68%		100%
	C. Increase number of Emerging Scholars funding opportunities	Scholarship funds	4	5		≥10 scholarship awards
	D. Increase number of Select Scholars contracts with historically Black colleges and universities (HBCUs)	Select Scholars program	0	1		≥2 executed contracts
2. Increase proportion of Hispanic/Latino students to 7%	A. Increase proportion of MPH Admissions Committee members who have completed bias training	Bias training	63%	84%		100%
	B. Increase proportion of MS and Doctoral Admissions Committee members who have completed bias training	Bias training	50%	68%		100%
	C. Increase number of Emerging Scholars funding opportunities	Scholarship funds	1	1		≥3 scholarship awards
	D. Increase number of Select Scholars contracts with Hispanic-Serving Institutions (HSIs)	Select Scholars program	0	0		≥1 executed contracts
3. Increase proportion of African American/Black faculty to 8%	A. Increase number of faculty positions posted with organizations and listservs targeted toward African American/Black faculty	Publish to appropriate listservs	0	0		≥5

Goal	Strategies	Activity	Year 1 (2016)	Year 2 (2017)	Year 3 (2018)	Target (2018)
	B. Hire African American/Black faculty under "opportunity hires" program	SPH Dean's Fund to target URM "opportunity hires"	0	0		≥1
	C. Increase number of visiting scholar presentations by African American/Black faculty	D&I Seminar Series, Dean's Seminar Series, Public Health Forum	13	13		≥6
4. Increase proportion of Hispanic/Latino faculty to 2%	A. Increase number of faculty positions posted on listservs targeted toward Hispanics/Latinos	Publish to appropriate listservs	0	0		≥5
	B. Hire Hispanic/Latino faculty under "opportunity hires" program	SPH Dean's Fund to target URM "opportunity hires"	0	0		≥1
	C. Increase number of visiting scholar presentations by Hispanic/Latino faculty	D&I Seminar Series, Dean's Seminar Series, Public Health Forum	5	4		≥2

Table G1.5.2. Quantitative data on achieving diversity goals

	Baseline (2015)	Year 1 (2016)	Year 2 (2017)	Year 3 (2018) ⁴¹	Target (2018)
African American/Black students	8%	7%	7%		10%
Hispanic/Latino students	6%	7%	8%		7%
African American/Black faculty	3%	4%	3%		8%
Hispanic/Latino faculty	1%	1%	1%		2%

Perceptions of the diversity climate

Students and faculty perceptions on the climate of SPH are collected on the annual School Survey, both quantitatively and qualitatively. As indicated in Table G1.5.2., both faculty and students held positive views towards the diversity climate at the school.

Table G1.5.3. Student and Faculty Perceptions of SPH Climate

	Strongly Agree or Agree 2015	Strongly Agree or Agree 2016	Strongly Agree or Agree 2017
Students			
Feel a strong sense of acceptance and belonging at BUSPH	78%	77%	79%
Feel the environment encourages an appreciation for diversity	73%	82%	86%
Faculty			
Feel a strong sense of acceptance and belonging at BUSPH	85%	73%	92%
Feel the environment encourages an appreciation for diversity	64%	69%	89%

The diversity and inclusion module and results from the School Survey are available as [ERF G1.5.1](#).

The School Survey also asks three open-ended questions related to diversity and inclusion: areas of strength, areas for improvement, and desired events, programs, and initiatives SPH should pursue in the next year.

Student perceptions of the school's diversity and cultural competence climate were positive, with many students expressing recognition and appreciation of the SPH efforts to fostering a diverse and inclusive community through events, student organizations, and inclusion of social justice concepts in the core courses. One student noted, "From orientation, to the first day of classes when professors remind us that the school is focused on diversity, inclusion, and not being afraid to openly discuss these topics". Another student, from the class of 2018, responded "Honestly, I think you guys are doing great work. I would suggest more conversations around diversity and inclusion at the faculty level and even an open dialogue between students and faculty to create better understanding."

Faculty perceptions of the school's diversity and cultural competence climate were overwhelmingly positive. Faculty expressed appreciation of the concerted efforts put forth to increase the diversity,

⁴¹ Data will be updated for the final self-study.

inclusion, and cultural competence at SPH. One faculty stated, “. . . there is no doubt we could do better. It is a strength that we recognize we could do better and are making it a priority to do so”.

G1.6. Assessment of strengths and weaknesses related to this criterion and plans for improvement in this area, if applicable. (self-study document)

SPH sees creating a diverse and culturally inclusive environment as an ongoing, ever-evolving effort. The school's diversity and inclusion efforts are structured, visible, and targeted. The school articulates its diversity and inclusion goals on the Strategy Map and 11-point plan, both of which are public documents, and the Assistant Dean for Diversity and Inclusion is a member of the school's Governing Council. Data collection and measuring progress towards the school's goal is regular and easily available through the annual School Survey, the University Information System (a university-wide student records system, often called UIS), and SAP (a university-wide human resources and financial system). SPH hosts many diversity and inclusion programs and events, including the Diversity and Inclusion Seminar Series, SPH Reads, Dean's Seminar Series, and Public Health Forum. Events are open to anyone wishing to attend and are livestreamed so that participants may join from anywhere in the world. The school also supports a number of formal student organizations, such as the Students of Color for Public Health. Professional development opportunities like StAMP, bias training, and faculty workshops, are designed with specific audiences in mind, allowing for participants to directly apply the diversity and inclusion training to their specific role.

A number of challenges related to diversity and inclusion persist. SPH relies on UIS to report student data and the system has limitations. For example, students may only report binary male/female gender information, multiracial students may only report as “more than one race” rather than selecting multiple races, and international students are not able to identify a race. UIS data is also limited by the information students wish to disclose and student self-identification varies, with as much as 27% of students not identifying a race in 2015. Improvement of the UIS system is a complex, long-term, and usually expensive undertaking and unlikely to happen in the near future. Recent incoming students, however, are (coincidentally) increasingly reporting their race with only 7% of the Fall 2017 incoming class not reporting race.

As noted in section G1.2, the school continues to have challenges with recruiting priority underrepresented faculty. Priority underrepresented faculty are regularly invited to engage with SPH and a mechanism exists to extend timely, competitive offers. A Faculty Senate Task Force is exploring the procedural facilitators and barriers to hiring URM faculty, and recommendations from the task force will be considered and implemented as appropriate. Furthermore, the school has taken the view that recruitment is an ongoing activity and are taking a “surveillance” approach to identifying priority URM faculty candidates. The school will closely monitor these actions, and those detailed throughout this section, and will tailor strategies as appropriate in the coming years.

H1. Academic Advising

The school provides an accessible and supportive academic advising system for students from the time of enrollment. Each student has access, to advisors who are actively engaged and knowledgeable about the school's curricula and about specific courses and programs of study. Qualified faculty and/or staff serve as advisors in monitoring student progress and identifying and supporting those who may experience difficulty in progressing through courses or completing other degree requirements. Orientation, including written guidance, is provided to all entering students.

1) Describe the school's academic advising services. If services differ by degree and/or concentration, a description should be provided for each public health degree offering. (self-study document)

SPH students have access to faculty advisors, professional staff advisors, and alumni mentors, all of whom comprise the BU advising network. Professional staff advisors include staff in Graduate Student Life, the Registrar's Office, the Career Services and Practicum Office, and department program managers. Professional staff serve a variety of roles, including working with MPH students to select a first semester cohort for the integrated core courses.

All degree candidates are assigned an official faculty advisor. This assignment is made upon matriculation for MS, MA, PhD and DrPH students and upon selection of a functional certificate for MPH students. Many MPH students make this selection prior to matriculating and all make it by the end of their first month at SPH. The role of the faculty advisor is to support students in devising a learning plan to maximize their potential for academic success and achievement of professional goals. Students work with their faculty advisor to select courses, practica or internships, and a capstone project or integrated learning experience that best fit their professional goals. Students are encouraged to meet with their faculty advisors at least one month before registering for courses each semester and as needed at other times during the semester. Faculty advisors also work closely with the schools' Satisfactory Academic Progress committee to assist students facing academic challenges and/or academic probation while enrolled at SPH, and students are encouraged to speak with their faculty advisor if they are concerned about their ability to maintain satisfactory academic standing.

SPH also has an open-door policy on advising, encouraging students to reach out to any faculty or staff member who may be of assistance.

2) Explain how advisors are selected and oriented to their roles and responsibilities. (self-study document)

Faculty advisors are selected and assigned by their academic department, based on the faculty member's expertise and the prospective advisee's interests and career goals. Degree program directors or certificate leads ensure that faculty who are assigned as advisors are oriented to the role and update advisors on any curricular modifications. Faculty advisors receive program handbooks and certificate roadmaps that outline all program requirements and contain useful advising tips. SPH also provides a number of web-based resources for faculty advisors, including a faculty dashboard with links to policies and procedures, handbooks and curricula, and degree advice, an online tool for monitoring degree completion and course planning. Each student has a degree advice account that is pre-programmed with the requirements of their specific program that is also accessible to their academic advisor. The degree advice report includes:

- required coursework for their degree program and specialization options,
- coursework still needed to graduate,
- options that fulfill each requirement, and
- courses or requirements that were fulfilled through transfer credit.

Degree advice also allows students and advisors considering a specialization change to perform speculative “what-if” audits, based on the student’s current class history and the requirements of the potential new academic program. Students can then discuss the implications of a change with their faculty advisor.

3) Provide a sample of advising materials and resources, such as student handbooks and plans of study, that provide additional guidance to students. (electronic resource file)

Degree handbooks and advising materials are available as [ERF H1.3.1](#).

4) Provide data reflecting the level of student satisfaction with academic advising during each of the last three years. Include survey response rates, if applicable. Schools should present data only on public health degree offerings. (self-study document)

Satisfaction with academic advising is measured on the annual School Survey, administered to all students, and available as [ERF C2.5.1](#). A Graduate Exit Survey was administered to MPH and MS students at the time of graduation through the 2015-2016 academic year. In 2016, the Graduate Exit Survey was folded into the annual School Survey, which is now administered each September. Because the School Survey is conducted at the beginning of the academic year, questions related to academic advising are asked only of continuing students (i.e. those who have completed at least one semester).

Over the last three years:

- 73% of masters-level graduates (Exit Survey, 336 respondents) and 53% of all continuing students (School Survey, 150 respondents) were satisfied or very satisfied with academic advising in 2015-2016
- 79% of continuing students (School Survey, 198 respondents) were satisfied or very satisfied with academic advising in 2016-2017
- 52% of continuing students (School Survey, 87 respondents) were satisfied or very satisfied with academic advising in 2017-2018

Table H1.4.2. details MPH and MS graduates’ ratings of their assigned faculty academic advisor from the 2015-2016 academic year. Table H1.4.3. details MPH and MS graduates’ ratings of their assigned faculty academic advisor from the 2016-2017 and 2017-2018 academic years.

Table H1.4.2. Student Rating of Assigned Faculty Academic Advisor 2015-2016

	Outstanding	Average	Poor
Was responsive to my needs	63%	37%	0%
Clearly communicated program requirements	65%	28%	7%
Understood my academic goals	77%	20%	3%
Helped me to create a program geared toward my interests	66%	24%	10%
Provided sound academic advice	74%	26%	0%
Provided sound career advice	63%	26%	11%
Was a good resource	70%	27%	3%

Table H1.4.3. Student Rating of Assigned Faculty Academic Advisor

	Strongly agree or agree, 2016-2017	Strongly agree or agree, 2017-2018
Responds to emails and meeting requests within a reasonable amount of time	83%	78%
Accessible and available	81%	77%
Understands policies and procedures, degree program and graduation requirements	80%	71%
Refers me to other school/university-wide resources as appropriate	72%	66%
Discuss academic goals and my progress toward those goals	69%	62%
Asks about my career and professional goals	70%	64%
Provides helpful career advice	65%	55%
Listens well and understands my needs	70%	67%
Respectful during our interactions	93%	85%
Demonstrates concern for my overall well-being	80%	70%
Serves as a mentor	52%	53%

5) Describe the orientation processes. If these differ by degree and/or concentration, provide a brief overview of each. (self-study document)

SPH Orientation is a comprehensive, four-day event that facilitates students transition into the school and aims to enrich their educational experience by setting clear expectations, introducing them to staff and faculty, orienting them to the culture of teaching at learning at the school, and creating networking opportunities with their peers, faculty, staff, and administration. Incoming students learn about life inside and outside the classroom, from academics to research, employment, and volunteer opportunities. Recognizing that orientation is packed with information, Graduate Student Life also developed and maintains an orientation app so that students can refer back to important documents and information about health, safety, transportation, academic requirements and policies, the code of conduct and grievance policy, and other issues throughout their time at the school.

The vast majority of orientation activities are the same for all SPH students, with two exceptions. MPH students meet with faculty from each certificate specialization during the certificate welcome session and MS and PhD students meet with their program faculty to review their specific program requirements. All students are invited to orientation and the full schedule is available as [ERF H1.5.1](#).

6) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)

SPH is strongly committed to its students and supporting them in achieving their personal, academic and professional goals. In order to fulfill this commitment, all students must receive quality academic advising. Students have the opportunity to work with not only their assigned faculty advisor, but also professional staff advisors in each department and centralized staff in Graduate Student Life, the Registrar's Office, and the Career Services and Practicum Office. The school has undergone a number of curricular changes in the past three years. As a result, it has been challenging to ensure that all faculty members are knowledgeable about and confident in specific program requirements. Thus, more training sessions, new and enhanced printed and online materials are being developed and disseminated to

clarify the role of academic advisors and professional advisors and to collect data from faculty, staff and students on additional resources that might be beneficial.

H2. Career Advising

The school provides accessible and supportive career advising services for students. Each student, including those who may be currently employed, has access to qualified faculty and/or staff who are actively engaged, knowledgeable about the workforce and sensitive to their professional development needs and can provide appropriate career management advice. Career advising services may take a variety of forms, including but not limited to individualized consultations, resume workshops, mock interviews, career fairs, professional panels, networking events, employer presentations and online job databases.

The school provides such resources for both currently enrolled students and alumni. The school may accomplish this through a variety of formal or informal mechanisms including connecting graduates with professional associations, making faculty and other alumni available for networking and advice, etc.

1) Describe the school's career advising and services. If services differ by degree and/or concentration, a brief description should be provided for each. Include an explanation of efforts to tailor services to meet students' specific needs. (self-study document)

The school's **Career Services and Practicum Office** offers comprehensive services to all SPH degree candidates and alumni, as detailed below.

Individual, in-depth career and practicum advising focusing on assessing career interests, learning about employers and market trends in specific fields of interest, creating a targeted career action plan, identifying practicum opportunities that will "fill gaps" and build resumes, marketing oneself (personal brand, elevator pitch, resumes, CVs, cover letters), creating a LinkedIn profile, and practicing how to network and interview. Career Services and Practicum Office staff also advises students and alumni on evaluating career opportunities; negotiating practicum offers, job offers, or promotions within current organization; preparing for performance reviews; and dealing with difficult work situations. Students and alumni may make appointments to work with a career advisor or may use the resume, cover letter, and LinkedIn drop-in hours offered four days a week.

The Career P.R.E.P. (Prepare | Reach | Emerge | Propel) Program, a hallmark of the BU MPH, positions students with the techniques and professional confidence to effectively market themselves during the job search process and throughout their public health career. This program is mandatory for MPH students and is taught by experienced career services professionals. It is delivered both in the classroom setting as well as in an online format to accommodate students with varying schedules. The six Career P.R.E.P. modules covering all aspects of the job search process including self-assessment, marketing yourself, building an online presence, networking, interviewing and salary negotiation. Students in degree programs other than the MPH are able to participate in the Career P.R.E.P. course, however, it is not required. These students also have access to all other Career Services and Practicum Office offerings.

The Career Services and Practicum Office hosts 100+ employers on campus each year in order to expose students to various career paths/opportunities and to enhance students' networks. Many of these employers are alumni, encouraging students to build their professional networks. Employer visit formats include the annual Career Fair, Practicum and Internship Expo, and Alumni Network Express, as well as employer information sessions, industry and career panels, and executives in residence. The Career Services and Practicum Office also partners with SPH faculty to bring employers into the classroom as speakers. The office offers more than 40 workshops during the academic year. These workshops focus on how to find a practicum, working the career fair, acing a case interview, and salary negotiation, and encourage students to build skills while they build their networks.

Finally, a number of online career resources are available to students and alumni through the career library and career newsletter. The online library offers the traditional career development topics mentioned above and provides field-specific sections that align with the school's educational programs to help students become more knowledgeable and targeted in their career planning. The weekly 'Career Update' newsletter features hot jobs and practicum opportunities, a listing of where new graduates are landing jobs, upcoming career events including employers on campus, external networking opportunities, and weekly career tips. A sample of these career tips is available as [ERF H2.3.1](#).

SPH Handshake is an easy-to-use, online career management and job board tool available to SPH students and alumni. Positions are primarily identified by two dedicated staff members responsible for building practicum relationships and four career advising professionals responsible for targeted employer outreach for their assigned certificates. Employers may also contact SPH to have their position listed on SPH Handshake. The site is updated daily so students and alumni are assured that the more than 3,000 jobs and practicums posted annually are current.

2) Explain how individuals providing career advising are selected and oriented to their roles and responsibilities. (self-study document)

Since 2011, the Career Services and Practicum Office has hired seven staff members who have backgrounds in student advising, career advising, higher education, staffing/recruiting/human resources, and/or public health. The breadth and diversity of knowledge and experience that the staff possesses has fostered strategic career advising and the ability to develop a wide-ranging network of employers.

During the recruitment and selection process, the school identified candidates with backgrounds and experience in the fields noted above, and also proactively sought URM candidates. Interviews are conducted with BU's human resources office, individual staff members, and the Assistant Dean for Career Engagement. For the manager-level roles, candidates are also required to produce and deliver a mock student presentation to the Career Services and Practicum Office team tailored for a specific MPH specialization. Decisions are based on candidates' ability to showcase strengths in advising, communications (verbal and written), team work/collaboration, relationship-building and overall fit with the team.

Onboarding new career advisors is structured and thorough. New hires first participate in an orientation process that includes reviewing and discussing strategies employed in contemporary career services and being briefed on the current efforts, SPH employment data, and strategic plan for the Career Services and Practicum Office. New hires then receive in-depth training about the school, its programs and curricula, market place demands and careers for SPH students and alumni, and how to navigate the overlap between practicum and career advising. As staff serve the dual role of advising and employer outreach, onboarding also includes tips for managing this dual role, discussions of key employers, and employer presentation materials. New hires then shadow experienced Career Services and Practicum Office staff so they may better understand the SPH student population and advising approach. Once new hires develop a deep knowledge of the student population and SPH curriculum, they begin advising their own student cohorts and conducting outreach to targeted employers in order to increase job placements for SPH graduates.

3) Provide three examples from the last three years of career advising services provided to students and one example of career advising provided to an alumnus/a. For each category, indicate the number of individuals participating. (self-study document)

Annual SPH Career Fair. To boost employment and build public health professional networks, the Career Services and Practicum Office hosts an annual SPH Career Fair open to all SPH students and alumni. Over the past 3 years, the Career Fair has grown to become one of the largest, most visible events on campus with a waiting list for employers who wish to participate. Over 100 hiring managers and recruiters from 44 organizations attend representing a diverse cross-section of sectors including government, hospital, consulting, academia, health insurance, pharmaceutical and more. In 2016 and 2017, over 320 students and new graduates attended the Career Fair to learn about career opportunities. One-third of those students attended a “How to Work a Career Fair” workshop to prepare a plan for which employers to target, and to gain tips to approach representatives with a confident and concise “elevator” pitch to introduce themselves. The Career Services and Practicum Office received positive feedback from the employer evaluations: 100% reported that they met potential candidates for their organization with an average rating of 4.6 (1-5 scale) in terms of how valuable they found the Career Fair.

Practicum Expo and programming. In 2015, the Career Services and Practicum Office assumed responsibility for increasing and diversifying practicum opportunities for students. One of the most successful new offerings to support this goal has been hosting a Practicum Expo to expose students to various practicum sites and projects. In 2016, its inaugural year, the Practicum Expo attracted 30 organizations. In 2017, the Expo attracted 44 organizations with an additional number of sites on a waiting list and 159 students attended. The Career Services and Practicum Office also designed new programming to share, proactively, information with students about how to find a practicum, professional etiquette for a successful practicum experience, and how to navigate the academic portion of the practicum. These programs were designed and/or delivered in partnership with the Student Senate and the Registrar’s Office and had 146 student attendees in 2017.

Market-driven career advising. Student advising is infused with relevant market trends to ensure students are strategic as they determine career paths that fit their values, interests and goals. Advisors specialize in specific certificate areas so they can share a deeper understanding of the skills and knowledge in demand by employers, industry changes, research funding updates, and more. As the ever-changing public health landscape has become more diverse for students and graduates to navigate, this specialized knowledge is critical for them as they plan for successful job searches and longer-term career planning. For example, an increased number of public health candidates are interested in the field of strategic management consulting, a field that is often new to SPH students. Seeing an increased interest in this area, the Career Services and Practicum Office introduced new offerings to prepare students to succeed in rigorous case-based interviews, which are commonly used by consulting firms to evaluate candidates. This included “Careers in Consulting” presentations, “Ace the Case Interview” workshops and individual mock case interviews. Faculty have participated and partnered with the Career Services and Practicum Office as well by promoting these services to students and facilitating some of these workshops. In 2017, 13% of graduates secured positions at consulting firms.

Alumni. SPH alumni receive services for the rest of their lives, and the 9,500+ alumni across the globe may take advantage of these services via in-person meetings, as well as telephone, skype and email communications. Over the past three years, the Career Services and Practicum Office provided services to approximately 880 individual alumni annually, typically with multiple meetings and communications with each alumnus. The office has worked extensively with alumni right after completion of their degree, and has seen an uptick of alumni returning for services within 1-2 years of their graduation as they search for their second position post-graduation. The Career Services and Practicum Office facilitates professional networking, which has been extremely valuable to alumni job seekers as they look to gain insights on the public health job market across the country. Career advisors review resumes, cover letters and LinkedIn profiles, and conduct mock interviews to help alumni successfully market themselves during the job search process. Additionally, alumni return to the Career Services and Practicum Office for career advising focused on navigating difficult work situations, moving into more senior level roles, negotiating salary increases, and promotions.

In sum, career advising is a well-utilized resource at SPH, with the vast majority of SPH students and many alumni taking advantage of the services; attendance numbers at past events are summarized in Table H2.3.1.

Table H2.3.1. Attendance for Career Advising Services

Career Advising Service	2015-2016	2016-2017	2017-2018 ⁴²
Career Fair	300	319	
Practicum Expo	120	159	
Practicum programming	120	146	
Market-driving advising	700	770	
Consulting and case interview workshops	146	183	
Alumni advising	820	880	

4) Provide data reflecting the level of student satisfaction with career advising during each of the last three years. Include survey response rates, if applicable. (self-study document)

The school captures data related to the level of student satisfaction with career advising through the Graduate Exit Survey, annual School Survey, and Post-Graduate Employment Survey. As described in criterion H1, the school's data collection methods shifted in 2015. Satisfaction with career advising was asked on the last Graduate Exit Survey in 2015 and the School Survey in 2016 and 2017. The school also measures satisfaction with career advising on the Post-Graduation Employment Survey, which is administered six months post-graduation to all SPH degree program alumni.

On the 2015 Graduate Exit Survey, 61% of the 370 student respondents indicated that career counseling was an area of strength; 25% responded it was an area for improvement, and the remaining 14% of the respondents indicated it was neither a strength nor an area for improvement. Qualitative feedback suggested strengths in individual career advising, and general expertise and attentiveness of the career services staff. Qualitative feedback suggested areas for improvement were identifying more career opportunities for graduates outside of Massachusetts and providing more support for international students. Of note, the Graduate Exit Survey was conducted at the point of graduation, before many students had finalized their job search. Beginning in 2016, students were surveyed post-graduation on the School Survey and beginning in 2017, Career P.R.E.P. was mandatory for all MPH students, allowing for a smoother transition from the practicum to careers. These two changes have been significant; as indicated by the 2016 and 2017 data that follows.

On the 2016 School Survey, 87% of the 139 student respondents who utilized career services advising were either very satisfied (44%) or satisfied (43%) with career advising. Qualitative responses indicate the same areas of strength as prior years. Qualitative responses also expressed there is room for improvement in the depth and specificity of career advising available from faculty. In 2017, 71% of the 87 student respondents who utilized career advising were either very satisfied (38%), satisfied (33%) or somewhat satisfied (19%) with career advising.

In addition to satisfaction, the school's Post-Graduate Employment Survey asks students to (1) rank what they value most in terms of career services offerings and (2) share feedback and suggestions for improvement for career services offerings. During years 2015 and 2016, students most valued specialized concentration/certificate-based career advising, followed by general career advising and resume review/cover letter reviews. Qualitative responses included that the school should continue to provide specialized concentration/certificate-based career advising. In terms of areas for improvements,

⁴² Data will be updated for the final self-study.

students suggested that the school improve responsiveness and overall support, and proactively advertise services for students to begin the career planning process earlier.

5) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)

The school's findings have been consistent based on both qualitative and quantitative data analysis for the past two years. While foundational services such as general career advising and resume and cover letter reviews are greatly in demand and considered to be some of the most valued services by students, the school's biggest strength is the expertise of the career advisors who provide specialized certificate-based advising. Career advisors use this same specialized approach with employer outreach and relationship management efforts, as well as alumni engagement. Career advisors have expertise in all phases of career development based on their years of experience in career services, human resources, recruiting, and hiring and supervising public health professionals, and have deep specialized knowledge of the public health job market (i.e. global health, research and pharma, management and policy, and community health.) This knowledge infuses almost everything the Career Services and Practicum Office does. Career advisors also work collaboratively with faculty and across the academic departments to develop specialization-based programming.

In terms of areas for improvement, the Career Services and Practicum Office is working to clarify and increase communications with students about the different types of career advising available from faculty advisors (career goal setting and content knowledge) and from the Career Services and Practicum Office staff (full service career advising, professionalism, networking, and placement assistance). The Career Services and Practicum Office would also like to improve their use of technology to meet the needs of the growing student body, including utilizing technology to reach students earlier in their degree programs. As the school attracts students from diverse geographic areas, the office is continuing to build relationships with employers across major cities across the United States to identify additional career opportunities.

H3. Student Complaint Procedures

The school enforces a set of policies and procedures that govern formal student complaints/grievances. Such procedures are clearly articulated and communicated to students. Depending on the nature and level of each complaint, students are encouraged to voice their concerns to school officials or other appropriate personnel. Designated administrators are charged with reviewing and resolving formal complaints. All complaints are processed through appropriate channels.

1) Describe the procedures by which students may communicate any formal complaints and/or grievances to school officials, and about how these procedures are publicized. (self-study document)

SPH students who feel they have been treated unfairly maintain the right to be heard fairly and promptly. Students may do this through a variety of methods: reporting the complaint to the relevant instructor or department chair, the Director of Graduate Student Life, the Associate Dean for Education, or the Dean. Students may also contact university officials, including the Dean of Students and University Ombuds. The Dean of Students refers complaints back to SPH, while staying in contact with students as they move through the complaint process. The Ombuds serves as an independent, impartial, and confidential, problem-solving resource with a direct line of report to the University President.

The school's Dispute Resolution Process and Grievance Procedures are detailed in the SPH Bulletin (bu.edu/academics/sph/policies/grading/), and are described at new student orientation as well as at monthly student meetings attended by the deans of the school.

2) Briefly summarize the steps for how a complaint or grievance filed through official university processes progresses. Include information on all levels of review/appeal. (self-study document)

Once a student initiates a dispute or grievance, they are invited to speak with relevant faculty and/or the Director of Graduate Student Life. The goal of this initial meeting is to assess the situation and determine if further action is required. Situations requiring further action by SPH administration are documented in an email from the student to the Director of Graduate Student Life. These emails are then sent to the Associate Dean for Education who meets with the student and the opposing party separately. Students are encouraged to bring an advocate to the meeting. All parties are invited to keep an open line of communication to allow for a fair and diplomatic process.

After careful review of the facts presented, the Associate Dean for Education issues a written resolution. If either party feels the resolution is not acceptable, they may appeal the decision to the Dean. At any time during the resolution process, either party may reach out to the University Ombuds for consultation.

3) List any formal complaints and/or student grievances submitted in the last three years. Briefly describe the general nature or content of each complaint and the current status or progress toward resolution. (self-study document)

January 2016 – Two separate grade disputes were reported to the Director of Graduate Student Life. The first incident was from a student who did not agree with final grade they received and argued that the participation grade was not reflective of the work completed, resulting in a failure in the class. The Associate Dean for Education determined that the grade given was consistent with the documented distribution outlined in the course syllabus. After consultation with the instructor and colleagues teaching other sections of the same course, it was discovered that additional assignments had been granted to increase borderline grades in other sections of the class. The student was offered and completed an additional assignment and was successful in achieving a passing grade.

The second grade dispute was received by the Director of Graduate Student Life from a student who reported not being allowed additional time to complete assignments while dealing with personal extenuating circumstances. The situation was discussed with the Associate Dean for Education and the course instructors who together devised a detailed plan for the student, including first granting incompletes for missing coursework. The student was able to complete the planned schedule, submitted missing assignments, and received a satisfactory grade.

April 2017 – A student reported that a group member sent an offensive and racist email following an incident that occurred in class. One of the team members forwarded the email to the professor to report it and the email recipient reported the incident to the Director of Graduate Student Life. The Director immediately informed the Associate Dean of Education of the situation and met with the student complainant. After the instructor dissolved the group, the student who received the email did not wish to pursue the matter but the Director and Associate Dean met with the sender of the email. The meeting included discussion of inappropriate behavior within the group as well as the email and recognition by the student that this was a violation of the University's Academic Code of Conduct. The student understood the serious nature of the situation and assured the administration that this behavior would not continue. The student satisfied the course requirements independently while the other students continued in a group format. The student complainant was informed of the outcome and requested that no further action be taken. As a violation of the University's Academic Code of Conduct this incident will remain as a matter of record against the offender and could be used as a means for dismissal if the behavior persists.

May 2017 – A student reported to the Director of Graduate Student Life she was dissatisfied with a low grade they received on an assignment. It was recommended to the student that they meet with the instructor to review the grading criteria established for the assignment and report back if they wanted to pursue the matter further. No further action was requested.

July 2017 – A female student reported to her practicum supervisor that she experienced an incident with a male SPH student that left her feeling disrespected and unsafe. The practicum supervisor contacted the Director of Graduate Student Life for support and asked that it be handled by SPH administration. The Director of Graduate Student Life met with both students separately and discussed options for separating the two students. The practicum supervisor was able to find dedicated work space for each student in separate buildings and was prepared to terminate the male student if the concern was not resolved. In September 2017 the female student encountered the male student while conducting work within an SPH administrative office capacity. The female student expressed to her supervisor uneasiness with the working with the male individual and explained the incident from earlier that summer. After consultation with the female student it was decided that further action was warranted and the incident was reported to BU Judicial Affairs as sexual harassment. Judicial Affairs took on the matter and immediately issued a stay away order to the male student. The male student was restricted access to SPH administration in the building where the female student worked during her office hours. Furthermore, the male student was ordered to not attend events at the school when the female student was present as well as to distance himself as far away as possible when in class together. The students shared two classes in the Fall 2017 semester. The male student met with a Behavioral Medicine clinician to be counseled on the incident and adhere to the guidelines of the stay away order. While the two were completing their practicum hours in the same department, they continued with working at separate workstations at alternating times so that they were prevented from interacting. The male student adhered to the requirements of the stay away order and did not enter event or work space if the female student was present. The stay away order will continue until both have graduated from SPH.

4) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)

Students have numerous resources available at the department-, school-, and university-level if they need to file a complaint or grievance. The underlying goals of these processes are to resolve matters fairly and in a timely manner, using open lines of communication with all parties involved. The majority of student concerns are resolved informally by instructors and departmental staff. Formal complaints and grievances are well-documented, and both the grievance policy and the resolutions are periodically reviewed for consistency and fairness. The process is updated to reflect new procedures as needed.

H4. Student Recruitment and Admissions

The school implements student recruitment and admissions policies and procedures designed to locate and select qualified individuals capable of taking advantage of the school's various learning activities, which will enable each of them to develop competence for a career in public health.

1) Describe the school's recruitment activities. If these differ by degree, a description should be provided for each. (self-study document)

The school recruits qualified local, national, and international candidates through a variety of channels. Emphasis is placed on recruiting highly qualified students who fit the SPH mission and who add to the diversity of the community. SPH faculty, staff, students and alumni regularly engage in recruitment efforts, examples of which are below.

- Graduate fairs (all programs): SPH participates in graduate fairs hosted by undergraduate institutions, Idealist.org, and those sponsored by ASPPH (TIPH Fairs). In addition, SPH targets diversity-related recruitment opportunities such as the California Diversity Forum and the Gates Millennium Leadership Program.
- National conferences and associations (MS and PhD focus): The school has a presence (board members, presenters, exhibitors, and/or ad placements) within public health related conferences and association meetings such as APHA, Academy Health, CAHME, SER, NEHA, and others.
- Online fairs (all programs): Primarily hosted through CareerEco, SPH participates in at least three online graduate fairs. Prospective students may attend from anywhere with an internet connection, allowing the school to recruit across the US and internationally.
- Local employer recruitment (MPH and certificate focus): In collaboration with the Career Services and Practicum Office, the Activist Lab, and interested faculty, SPH recruits local public health professionals through meetings with young professionals groups and on-site information sessions for employees.
- Direct undergraduate recruitment (MS and MPH focus): Using data from previous application cycles, SPH identifies top 'feeder schools', undergraduate institutions from where at least four students applied to SPH programs. Each of these approximately 125 institutions receives printed materials annually and SPH faculty and staff visit in-person when travel to the area fits within other recruitment activities. SPH also targets new potential markets within undergraduate colleges that further the SPH mission, specifically small liberal arts colleges and minority serving institutions.
- Social media and email marketing (all programs): SPH maintains a presence in the marketplace via Facebook, Instagram, Twitter, and LinkedIn and has ongoing relationships with all prospective applicants through email updates, event announcements, and school news.
- Strategic partnerships/pipeline programs (MS and MPH focus): SPH has two targeted pipeline programs, which solidify strategic partnerships with undergraduate institutions and employers.
 - The Select Scholars Program forms partnerships with selected undergraduate institutions based on mission and diversity to recruit highly qualified undergraduates.
 - The Preferred Partners Program forms partnerships with select local employers to support and recruit public health professionals with 2+ years of public health experience.
- Alumni referrals (MS and MPH focus): The Next Generation Scholars Program is a collaboration with SPH Development and Alumni Relations that asks alumni to identify strong candidates for SPH programs. These referrals provide a targeted list for Admissions recruiting.
- Dual degree partnerships (MPH only): SPH collaborates across the university to recruit current undergraduate and graduate students into the dual MPH/BA, MPH/BS, MPH/MBA, MPH/MSW, MPH/MD, MPH/MS, and MPH/JD degree programs.
- On-campus visits (all programs): Each year the admissions office hosts 6 - 8 information sessions on campus. Staff are available to meet one on one with potential applicants/students, and coordinate class visits, lecture visits, and meetings with faculty and/or departments. In addition,

the admissions office works with diversity- and health-related undergraduate student organizations to plan group visits to campus.

2) Provide a statement of admissions policies and procedures. If these differ by degree, a description should be provided for each. (self-study document)

Admissions policies and procedures are centralized and coordinated through the SPH Admissions Office. The office is the main point of contact for all applicants, faculty, and staff involved in the admissions process.

The Admissions Office sets up applications through SOPHAS, SOPHAS Express, and HAMPCAS each year, communicates with applicants throughout the application process, and is the official holder of the applicant record. The Admissions Office works closely with designated faculty admission committees for each degree program (MPH and dual degrees, MS, DrPH, PhD) on upholding overall standards for admission, approving changes to application materials used in the selection process, and review of applicants for final selection.

Separate admissions committees exist for each degree program and members of the committees are appointed by department chairs in conjunction with the Associate Dean for Education and faculty program managers. Faculty serving on the committee commit to reviewing all completed applications for admission, contributing to meaningful discussion of applicants using a holistic review process, and voting on candidates for admission when disagreements occur.

The selection process begins with applications being reviewed for completeness with the Admissions Office after being released to them by SOPHAS, HAMPCAS, or SOPHAS Express. Once all application requirements have been received, applications are assigned to faculty reviewers on the appropriate admissions committee. Each admissions committee meets regularly during the application season to discuss applicants and to make final decisions. These decisions are communicated to the Admissions Office for recording and applicant notification.

A full description of admissions policies and procedures is available as [ERF H4.2.1](#).

3) Select at least one of the following measures that is meaningful to the school and demonstrates its success in enrolling a qualified student body. Provide a target and data from the last three years. In addition to at least one from the list that follows, the school may add measures that are significant to its own mission and context.

- Quantitative scores (eg, GPA, SAT/ACT/GRE, TOEFL) for newly matriculating students
- Percentage of designated group (eg, undergraduate students, mid-career professionals, multi-lingual individuals) accepting offers of admission
- Percentage of priority under-represented students (as defined in Criterion **G1**) accepting offers of admission
- Percentage of newly matriculating students with previous health- or public health-related experience
- Number of entering students with distinctions and/or honors from previous degree
- Percentage of multilingual students

(self-study document)

The school measures the percentage of a designated group, specifically students who identify as first-generation college and/or graduate students. This measure relates to the SPH mission in working with underserved populations and helps build a strong and diverse class of students. These students are

often attracted to the school through pipeline programs, such as the Select Scholars Program, and targeted recruitment strategies to increase access to graduate public health education.

Table H4.3.1. First generation students, all programs

Outcome Measure	Target	Year 1 2016	Year 2 2017	Year 3 2018 ⁴³
First Generation Undergraduate Applications	12%	12%	14%	
First Generation Undergraduate Acceptances	12%	11%	13%	
First Generation Undergraduate New Students (Yield)	15%	11%	13%	
First Generation Graduate Applications	30%	31%	36%	
First Generation Graduate Acceptances	30%	29%	35%	
First Generation Graduate New Students (Yield)	30%	27%	40%	

4) If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area. (self-study document)

Recruitment and enrollment are school-wide efforts at SPH. Faculty, staff, current students, and alumni help build messaging, and participate in recruitment, yield and retention efforts. Particularly strong partnerships between the Admissions Office and Development and Alumni Relations, Population Health Exchange (PHX) our Office of Lifelong Learning, the Career Services and Practicum Office, and the Activist Lab support the school's efforts to recruit diverse students and working public health professionals. Recruitment and enrollment efforts align with the school's strategy map, and in particular the efforts to strengthen the community through recruitment and community programming.

As interest in public health continues to grow nationally, the number of applications to SPH programs grows. The school is committed to providing a consistently high-level of customer service to applicants and has scaled efforts to meet this demand. For example, the admissions team now conducts group visits rather than individual, fully customized visits for prospective applicants. This switch to seeking efficiencies while remaining responsive to applicants has been a culture shift for many faculty and staff, as has the increased formality of admissions processes.

Similar to the data challenges described in criterion **G1**, identifying the exact proportion of students who are first-generation is difficult as responses to those prompts are (appropriately) voluntary. Current targets are based on internal enrollment and, moving forward, the school will benchmark against other schools of public health, graduate schools, and within higher education more broadly in order to contextualize the goal.

⁴³ Data will be updated for the final self-study.

H5. Publication of Educational Offerings

Catalogs and bulletins used by the school to describe its educational offerings must be publicly available and must accurately describe its academic calendar, admissions policies, grading policies, academic integrity standards and degree completion requirements. Advertising, promotional materials, recruitment literature and other supporting material, in whatever medium it is presented, must contain accurate information.

1) Provide direct links to information and descriptions of all degree programs and concentrations in the unit of accreditation. The information must describe all of the following: academic calendar, admissions policies, grading policies, academic integrity standards and degree completion requirements. (self-study document)

Academic bulletin, programs and requirements: bu.edu/academics/sph/programs/

Academic calendar: bu.edu/sph/students/advising-and-registration/academic-calendar/

Admissions requirements: bu.edu/sph/admissions/applying/programs/

Grading policy: bu.edu/academics/sph/policies/grading/

Academic integrity: bu.edu/academics/sph/policies/standards-of-academic-honesty-and-disciplinary-procedures/

Academic progress and graduation: bu.edu/academics/sph/policies/academic-progress-and-graduation/

SPH Mission

To improve the health of local, national, and international populations, particularly the disadvantaged, underserved, and vulnerable, through excellence and innovation in education, research, and service

SPH Values

Our values drive what we do and how we do it. We are deeply committed to igniting positive change in the world. We seek to create a respectful, collaborative, diverse, and inclusive community within SPH, and to promote justice, human rights, and equity within and across our local and global communities. We are bold in our pursuit of knowledge that matters, creative in our pursuit of solutions, and innovative in our education. In all we do, it is our engagement with people, communities, and institutions in the world beyond our academic walls that leads to success.