

self-study report

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Self-Study Report

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Abbreviations and Acronyms

AALHE	Association for the Assessment of Learning in Higher Education
ABRCMS	Annual Biomedical Research Conference for Minority Study
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
ARS	Audience Response System
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	Biostatistics and Epidemiology Data Analytics 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
CBPR	Community-Based Participatory Research
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
DAG	Directed Acyclic Graphs
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
FTE	Full-Time Equivalent
GAPP	Graduate Academic Programs and Policies
GC	Governing Council
GIS	Geographic Information System
HAMPCAS	Healthcare Administration, Management, and Policy Centralized Application Service
HBCU	Historically Black Colleges and Universities
HSI	Hispanic-Serving Institution

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
LEND	Leadership Education in Neurodevelopmental and Related Disabilities
LMS	Learning Management System
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
SAP	Systems Applications and Products
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
SOPHAS	Schools of Public Health Application Service
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. Boston University offers bachelor's degrees in 167 majors, master's degrees in 315 concentrations, and doctoral degrees in 169 areas. These degrees are conferred by 17 schools and colleges within the university. A full list of degrees offered is included as [ERF Intro1.1](#).
- c. As of Fall 2017, Boston University employed 4,021 full-time and part-time faculty and 6,161 staff, and had 34,262 enrolled students.
- 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 the 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, cultural, and professional opportunities, the university's reach is definitely global, with 33,000 students from all 50 states and 152 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.

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, Healthcare 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 in 1994 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 increased 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 the merging of Health Law, Bioethics, and Human Rights and Health Policy and Management. 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, which led to its current strategic plan in the same year. Informed by the strategic plan and changes in higher education nationally, in 2016, 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](#).

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
 - 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 (e.g., reporting to the President through the Provost)
-

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

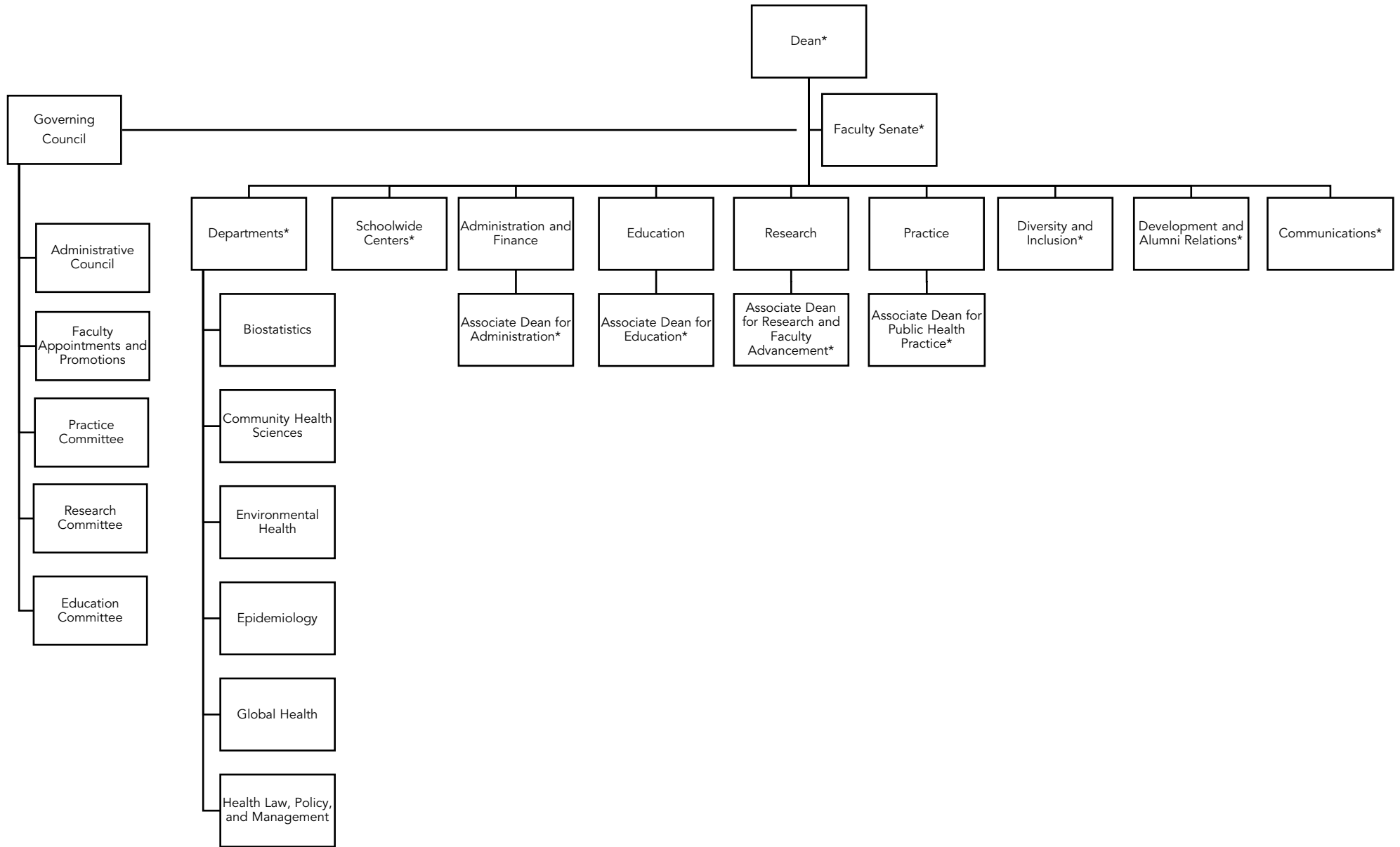
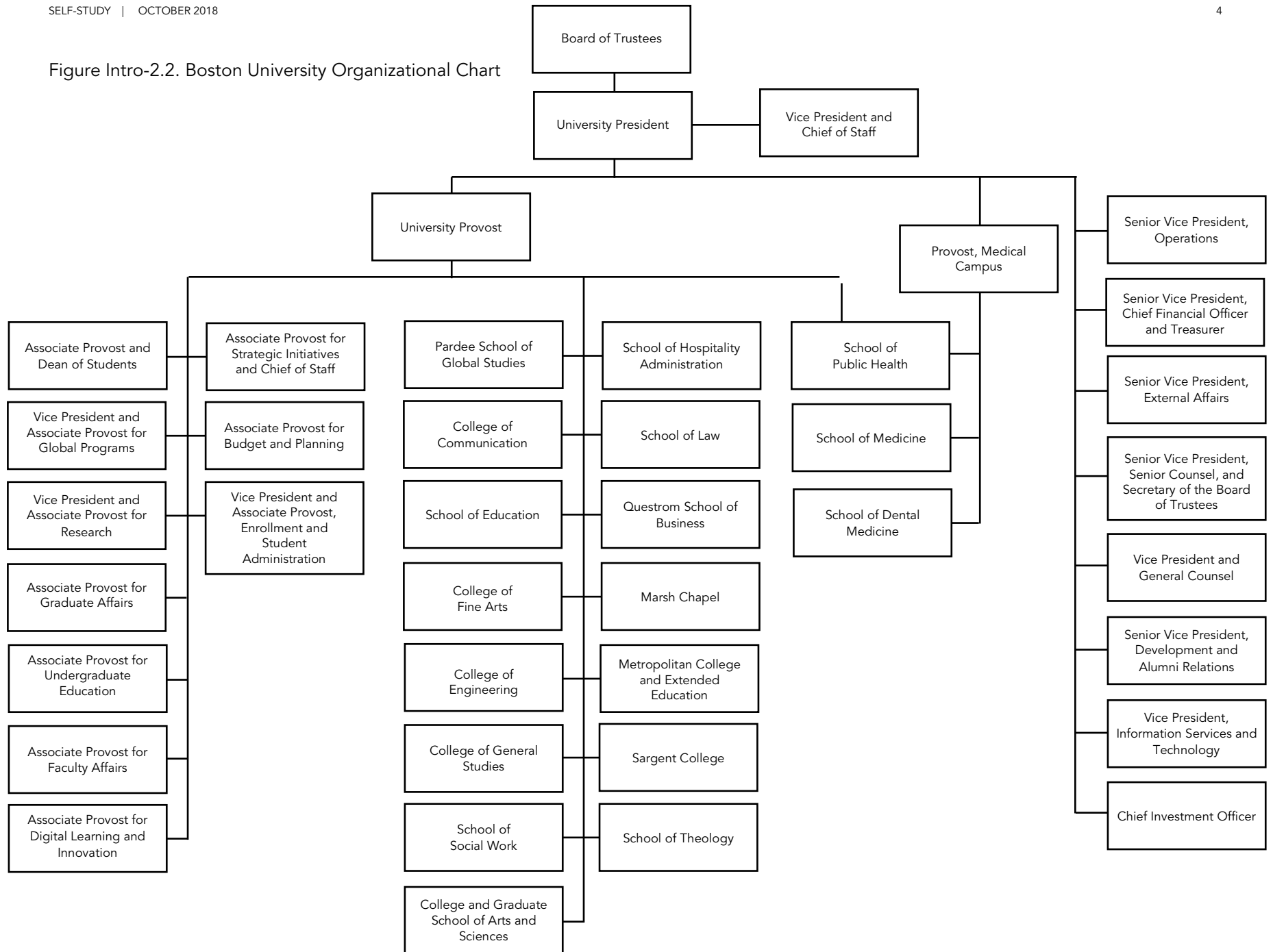


Figure Intro-2.2. Boston University Organizational Chart



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 Health		MPH	x	MPH		
Epidemiology and Biostatistics		MPH	x	MPH		
Global Health Program Design, Monitoring, and Evaluation		MPH	x	MPH		
Health Communication and Promotion		MPH	x	MPH		
Healthcare Management		MPH	x	MPH		
Health Policy and Law		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								
Arts 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, Fall 2018

Degree	Current Enrollment ¹
Master's	1097
MPH	883
Community Assessment, Program Design, Implementation, and Evaluation	102.5
Design and Conduct of Public Health Research	11
Environmental Hazard Assessment/Environmental Health	24
Epidemiology and Biostatistics	278.5
Health Communication and Promotion	46
Health Policy and Law	98.5
Healthcare Management	102.5
Monitoring and Evaluation/Global Health Program Design, Monitoring, and Evaluation	21.5
Program Management	52.5
Public Health Practice	2
Interdisciplinary Training in Public Health ²	120
Legacy MPH Concentrations ³	24
BA/MPH	24
Environmental Hazard Assessment	1
Epidemiology and Biostatistics	3
Health Communication and Promotion	1
Health Policy and Law	3
Healthcare Management	3
Interdisciplinary Training in Public Health	9
Legacy MPH concentrations	4
BS/MPH	54
Community Assessment, Program Design, Implementation, and Evaluation	4
Epidemiology and Biostatistics	11
Health Policy and Law	1
Healthcare Management	2
Monitoring and Evaluation	1
Program Management	1
Interdisciplinary Training in Public Health	30
Legacy MPH concentrations	4
JD/MPH	5
Health Policy and Law	5
MBA/MPH	25
Health Policy and Law	4
Interdisciplinary Training in Public Health	18
Legacy MPH concentrations	3

¹ Students who are in two functional certificates/concentrations are counted as 0.5 in each functional certificate/concentration.

² Interdisciplinary Training in Public Health is the designation for students who have not yet chosen a functional certificate.

³ The self-study reflects the school's current degree programs; legacy MPH degrees are included here to reflect the school's total student enrollment. These students will reach their maximum time to graduation in 2020.

Degree	Current Enrollment ¹
MD/MPH	3
Community Assessment, Program Design, Implementation, and Evaluation	1
Epidemiology and Biostatistics	1
Interdisciplinary Training in Public Health	1
MS/MPH	8
Epidemiology and Biostatistics	3
Health Policy and Law	1
Interdisciplinary Training in Public Health	4
MSW/MPH	28
Community Assessment, Program Design, Implementation, and Evaluation	3
Epidemiology and Biostatistics	1
Health Policy and Law	2
Healthcare Management	1
Monitoring and Evaluation	1
Program Management	3
Interdisciplinary Training in Public Health	14
Legacy MPH concentrations*	3
MA	7
Biostatistics	7
MS	60
Applied Biostatistics	19
Environmental Health Data Analytics	1
Epidemiology	21
Health Services and Systems Research	15
Public Health Nutrition	4
Doctoral	143
DrPH	36
Leadership, Management, and Policy	32
Legacy DrPH Concentrations ⁴	4
PhD	107
Biostatistics	42
Environmental Health	19
Epidemiology	25
Health Services Research	21

⁴ 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

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	Dean	All associate deans, department chairs, designated schoolwide 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 bylaws, as indicated on the organizational chart (Figure Intro-2.1).	Has approval authority for planning, budgeting, space, faculty appointments and promotions, schoolwide policy setting, and other strategic activities. It advises the Dean on senior administrative appointments. The GC meets biweekly.

STANDING COMMITTEES			
COMMITTEE	CHAIR	COMPOSITION	CHARGE
Administrative Council	Associate Dean of 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 levels; communicates important current schoolwide information on SPH best administrative practices; and engages in discussions on a variety of business practices with relevant university officials. The council meets biweekly and reports to the Governing Council.
Appointments and Promotions Committee	A senior faculty member 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). The committee meets monthly and reports to the Governing Council.

STANDING COMMITTEES			
COMMITTEE	CHAIR	COMPOSITION	CHARGE
Education Committee	Associate Dean of Education	One faculty member from each department, at least one student representative, the Assistant Dean of Education, the Assistant Dean of Public Health Practice, the Registrar, and the Director of Educational Initiatives	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. The committee meets biweekly and reports to the Governing Council.
Practice Committee	Associate Dean of Practice	Faculty and staff from the Activist Lab, faculty representatives from each department, and at least three student representatives	Serves as 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. The committee meets bimonthly and reports to the Governing Council.
Research Committee	Associate Dean of Research and Faculty Development	Faculty members from each department and at least one student representative	Makes recommendations to the 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. The committee meets monthly and reports to the Governing Council.

ADVISORY AND OPERATIONS COMMITTEES			
COMMITTEE	CHAIR	COMPOSITION	CHARGE
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. The council meets three times a year and reports to the Governing Council.

ADVISORY AND OPERATIONS COMMITTEES			
COMMITTEE	CHAIR	COMPOSITION	CHARGE
Committee on Community Development	Director of People Services	SPH staff from across the school	Promotes professional development and community building among the staff. The committee meets monthly and reports to the Administrative Council.
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 of individuals who work in both public health and non-public health sectors. The advisory board meets semiannually and reports to the Governing Council.
Doctor of Public Health (DrPH) Committee	Assistant Dean of DrPH Education	Faculty representatives from across the school	Reviews applications and makes recommendations for admission to the DrPH program; implements all DrPH program guidelines; and monitors each DrPH student's studies. The committee also delegates authority to other persons (such as the dissertation committee for a student's doctoral dissertation) for specific functions. The DrPH Committee meets monthly and reports to the Education Committee.
Doctoral Programs Committee	Associate Dean of Education	Faculty directors of each PhD program, faculty representatives from departments without PhD programs who offer additional perspective and advise on the interdisciplinary DrPH program, the Assistant Dean of DrPH Education, the Director of Educational Initiatives, the Director of Admissions, and the Registrar	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 and allocates scholarship awards to accepted students. The committee collects and reviews student data annually to review satisfactory progress and ensure that all students meet graduate requirements. The committee meets biweekly and reports to the Education Committee.

ADVISORY AND OPERATIONS COMMITTEES			
COMMITTEE	CHAIR	COMPOSITION	CHARGE
Education Advisory Board	Associate Dean of 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 continues to offer high-quality educational programming that is responsive to the needs of the field. The committee meets once each semester and reports to the Education Committee.
Education Evaluation Subcommittee	Faculty member with evaluation expertise	Faculty from across the school, representatives from the Education Office, and an external consultant	Provides expertise and advice to the education committee for the evaluation of the School's educational program. The subcommittee collaborates with and where necessary provides leadership to existing SPH committees as well as university-wide assessment initiatives. The subcommittee meets monthly and reports to the Education Committee.
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. The committee meets weekly and reports to the Education Committee.

ADVISORY AND OPERATIONS COMMITTEES			
COMMITTEE	CHAIR	COMPOSITION	CHARGE
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, and practice. These activities are integrated with faculty development efforts on the Medical Campus and at the university. The committee meets on an ad-hoc basis and reports to the Governing Council.
MPH Admissions Committee	Associate Dean of 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 the criteria for admitting students, which include establishing satisfactory test scores and prior academic performance. The committee meets biweekly and reports to the Education Committee.
MS Programs Committee	Associate Dean of Education	All MS program directors and 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 and allocates scholarship awards to accepted students. The committee collects and reviews student data annually to assess satisfactory progress and to ensure that all students meet graduate requirements. The committee meets monthly and reports to the Education Committee.
Practice Advisory Board	Associate Dean of 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, and gives input on how to strengthen community connections and effectively partner in advancing the health of the public and the field of public health. The advisory board meets semiannually and reports to the Practice Committee.

ADVISORY AND OPERATIONS COMMITTEES			
COMMITTEE	CHAIR	COMPOSITION	CHARGE
Practicum Committee	Assistant Dean of Career Services	One faculty representative from each of the academic departments and the Practicum Manager	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. The committee meets at least once per semester and reports to the Education Committee.
Sponsored Programs Operating Committee (SPOC)	Director of Sponsored Research	SPH grants managers from each department	Identifies, discusses, and addresses issues; shares ideas; and develops school-wide best practices for the management of sponsored programs. The committee meets monthly and reports to the Administrative Council.

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 Faculty 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 Faculty 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 faculty program directors 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. Changes to degrees, such as the addition of a new specialization, changes in degree requirements, or changes in modality, must also be approved by the Governing Council and then approved by the university's Graduate Academic Programs and Policies (GAPP) Committee.

- b. Curriculum design proposals, which include developing a new degree program or dissolving an existing program, are submitted by department chairs or faculty program directors 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. New degree program and dissolution proposals must also be approved by the Governing Council and then approved by the university's Graduate Academic Programs and Policies (GAPP) Committee.
- 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 of 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 admissions 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 the Dean to appoint the new faculty member.

The school also has a mechanism for capitalizing on opportunistic recruitments. This approach allows SPH to pursue outstanding candidates who may be interested in joining SPH at times when we do not have a formal search in progress. This is an important part of our strategy to enhance the diversity of our faculty (criterion G1). These faculty are recruited to the school by a department chair or center director and do not go through the typical open search process. Instead, the department chair discusses the case with the Associate Dean for Research and Faculty Advancement, highlighting the candidate's talents, expected role, potential suitability for the proposed track and rank, and fit for the department and school. Then, as with all faculty candidates, candidates visit SPH to present to, and be vetted by, the faculty body. Opportunity hires are presented to the Appointments and Promotions Committee, who make recommendations to the Dean to appoint the new faculty member.

The school's Appointment and Promotion Guidelines also detail the faculty promotion process, which is shepherded by the Appointments and Promotions Committee. Faculty are recommended for promotion by their department chair or may bring forward their own promotion materials for review. The Appointments and Promotions Committee makes recommendations for promotion to the Dean.

Once an appointment or promotion is approved by the SPH Dean, the next steps vary by title or rank. For modified, adjunct, instructor, lecturer, emeritus, and practice appointments or promotions, the Dean is the final step of the approval process. For unmodified appointments at the assistant professor level, the Dean adds a letter of support and sends the packet to the BUMC Provost for final review. For unmodified appointments at the associate professor and professor ranks, the Dean adds a cover letter and sends the packet to the BUMC Provost for review. Once approved by the BUMC Provost, the packet is forwarded to the University President for final review.

- 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 levels. 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 campuswide committee charged with the oversight, planning, and design of shared academic spaces throughout the campus. (SPH membership: 1 faculty, 4 staff)
- The **Boston University Medical Campus Provost Council** is a weekly meeting held to facilitate the communication and collaboration between its members and to keep the Provost apprised of various programs, goals, and developments. (SPH membership: 1 faculty, 1 staff)
- The **Boston University Medical Campus Building Operations Committee** oversees decisions that involve construction, maintenance, renovations, and space allocations. (SPH membership: 2 staff)
- The **Institutional Review Board (IRB)** reviews research from investigators at Boston Medical Center and Boston University Medical Campus. (SPH membership: 6 faculty)

University committees:

- The **Advisory Council for Research Administration (ACRA)** discusses process improvements, training, and communications related to research; helps identify issues and areas for improvements, both within the schools and university-wide; shares insights, guidance, and feedback; and brings together the university research community. (SPH membership: 1 staff)
- The **Boston University Committee on Academic Program Review (CAPR)** is a standing committee composed of senior faculty from each of the university's schools and colleges charged with oversight of the program review process. (SPH membership: 1 faculty)
- The **Boston University Council** considers and recommends action on academic matters, including degree requirements, the discontinuation of academic programs, and the development of policies that affect either faculty or students. (SPH membership: 4 faculty)
- The **Boston University Faculty Council** is the elected representative body for faculty at Boston University. They discuss all matters affecting the academic and professional concerns of the faculty. (SPH membership: 5 faculty)
- 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. (SPH membership: the Dean)

- **The Boston University Leadership Group (ULG)** is composed primarily of the deans, vice presidents, and senior leaders (provosts, associate provosts, and the president) of the university. The ULG is a consultative body, designed to facilitate discussions between academic and administrative leaders to ensure a common understanding of emerging issues or impending initiatives. The group does not have formal policymaking authority or designated powers. (SPH membership: the Dean)
- The **Boston University Provost Council** appraises the University Provost of developments, programs, or issues within the university, and serves as a means for discussion and/or collaboration among the university's 17 schools and colleges. The University Provost functions as chair, and the body is composed of the deans of Boston University. (SPH membership: the Dean)
- The **Boston University Research Council** discusses research administration policies and processes, and provides an important connection between the schools and colleges and the offices that support them. (SPH membership: 1 faculty)
- The **Council of Deans**, presided over by the University Provost, discusses issues and policies that affect administrative and academic operations. (SPH membership: the Dean)
- The **Council on Educational Technology and Learning Innovation (CETLI)** is a university-wide group charged with discussing 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. (SPH membership: 1 faculty)
- 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. (SPH membership: 1 faculty)
- The **Graduate Assessment Working Group** provides the opportunity for sharing best practices and responding to the results of assessment across colleges. (SPH membership: 2 staff)
- 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. (SPH membership: 1 faculty)
- The **Task Force on Evaluating Teaching** is responsible for establishing standard guidelines and practices for evaluating teaching on campus.
- The **University Task Force on Diversity and 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. (SPH membership: 2 faculty)

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, secondary⁵, 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, teaching, and advising, and serve together as mentors for SPH students. The school hosts an annual social event

⁵ Boston University faculty are appointed to a department within a school. They may hold additional "secondary" appointments in another department within the same school or within another school at the university. Faculty with secondary appointments are held to the same appointment and promotion standards as primary faculty.

for adjunct faculty so that they may meet one another and interact with their primary faculty colleagues. All faculty, irrespective of their 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 faculty 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 toward 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

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

1) Describe student participation in policymaking 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 policymaking 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, and selects its own leadership team with mentoring from Graduate Student Life.

Student representatives serve on all standing and administrative committees that affect educational and student life matters. 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.

Each student at the school is encouraged to provide feedback during the Annual School Survey or at monthly meetings with the dean. At the conclusion of each course, students are asked to submit a course evaluation. Compiled course evaluations are reviewed by the faculty, the department chair, and the Education Committee.

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 Schoolwide Committees

	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 policymaking 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; given the typical orientation 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, including meeting with the committee chair and the outgoing student representative to brief the student on current committee business and encourage their participation. An area of improvement would be to make this more routine. Because many committees also have set schedules, finding 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

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 bylaws; sets its own strategic goals; does its own strategic planning; sets its own priorities to strengthen its educational, research, and service missions; 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 the unmodified 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 the schools within the university; sits on the University Council, the senior policymaking 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 setting 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 and annual reviews, but it also brings strengths by integrating 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

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 Health; Epidemiology and Biostatistics; Global Health Program Planning, Monitoring, and Evaluation; Health Communication and Promotion; Health Policy and Law; Healthcare Management; 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 focuses 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 master's 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

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 10 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 allowing for the most efficient use of school resources. 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 seven-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 seven-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 seven-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 that 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—which 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 practice, 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, with whom they work, 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 build on the school's strategy map. The Educational Evaluation Subcommittee (a subcommittee of the Education Committee), the Research Committee, and the Practice Committee are responsible for these evaluation plans, creating a structured way to gather input from the faculty, staff, and students who serve on these committees. The associate deans chair the standing committees, sit on the Governing Council, and serve as the bridge between the committees.

A brief description of the educational, 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 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 an 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 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 Governing Council 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 evolve 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 toward 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 measure 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 the 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

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

Graduation rate data for each public health degree is available as Tables B2.1.1 – B2.1.5.

Table B2.1.1. MPH Students by Cohort, Entering Between 2013–2014 and 2017–2018⁶

	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)	441				
	# 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)	417 ⁷	448			
	# 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)	105 ⁸	425 ⁹	476		
	# Students withdrew, dropped, etc.	10	11	5		
	# Students graduated	73	294	13		
	Cumulative graduation rate	86%	68%	3%		
2016–2017	# Students continuing at beginning of this school year (or # entering for newest cohort)	24	120 ¹⁰	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)	8 ¹¹	22 ¹²	129 ¹³	364 ¹⁴	514
	# Students withdrew, dropped, etc.	0	1	3	6	6
	# Students graduated	3	14	75	222	3
	Cumulative graduation rate	90%	90%	83%	60%	1%

⁶ Includes standalone MPH and all dual MPH students (BA/MPH, BS/MPH, MS/MPH, JD/MPH, MSW/MPH, MBA/MPH, and MD/MPH).

⁷ Official/Unofficial Leave of Absence students not counted: 2

⁸ Official/Unofficial Leave of Absence students not counted: 2

⁹ Official/Unofficial Leave of Absence students not counted: 2

¹⁰ Official/Unofficial Leave of Absence students not counted: 2

¹¹ Official/Unofficial Leave of Absence students not counted: 1

¹² Official/Unofficial Leave of Absence students not counted: 9

¹³ Official/Unofficial Leave of Absence students not counted: 9

¹⁴ Official/Unofficial Leave of Absence students not counted: 5

Table B2.1.2. MA Students by Cohort, Entering Between 2013–2014 and 2017–2018¹⁵

	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	2	3 ¹⁶	1
	# Students withdrew, dropped, etc.	0	0	0	0	0
	# Students graduated	0	0	2	1	0
	Cumulative graduation rate	100%	80%	100%	25%	0%

Table B2.1.3. MS Students by Cohort, Entering Between 2013–2014 and 2017–2018

	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)	9				
	# Students withdrew, dropped, etc.	0				
	# Students graduated	2				
	Cumulative graduation rate	22%				
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			

¹⁵ Students in the dual PhD/MA program are counted with the PhD numbers.¹⁶ Official/Unofficial Leave of Absence students not counted: 1

	Cohort of Students	2013–2014	2014–2015	2015–2016	2016–2017	2017–2018
	Cumulative graduation rate	33%	0%			
2015–2016	# Students continuing at beginning of this school year (or # entering for newest cohort)	3 ¹⁷	12	17		
	# Students withdrew, dropped, etc.	0	0	1		
	# Students graduated	2	6	2		
	Cumulative graduation rate	56%	46%	12%		
2016–2017	# Students continuing at beginning of this school year (or # entering for newest cohort)	3	5 ¹⁸	14	9	
	# Students withdrew, dropped, etc.	0	0	1	0	
	# Students graduated	0	4	10	1	
	Cumulative graduation rate	56%	77%	71%	11%	
2017–2018	# Students continuing at beginning of this school year (or # entering for newest cohort)	2 ¹⁹	1 ²⁰	4	8	41
	# Students withdrew, dropped, etc.	0	0	0	0	0
	# Students graduated	0	1	2	2	4
	Cumulative graduation rate	56%	85%	82%	30%	10%

Table B2.1.4. DrPH Students by Cohort, Entering Between 2011–2012 and 2017–2018

	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 ²¹	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 ²²	8	9				
	# Students withdrew, dropped, etc.	1	0	0				
	# Students graduated	1	0	0				

¹⁷ Official/Unofficial Leave of Absence students not counted: 2¹⁸ Official/Unofficial Leave of Absence students not counted: 1¹⁹ Official/Unofficial Leave of Absence students not counted: 1²⁰ Official/Unofficial Leave of Absence students not counted: 1²¹ Official/Unofficial Leave of Absence students not counted: 1²² Official/Unofficial Leave of Absence students not counted: 1

	Cohort of Students	2011–2012	2012–2013	2013–2014	2014–2015	2015–2016	2016–2017	2017–2018
	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			
	# 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 ²³	5 ²⁴	7 ²⁵	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)	2	4	6	7	7	7	10
	# Students withdrew, dropped, etc.	0	0	0	0	0	1	0
	# Students graduated	1	0	0	1	1	0	0
	Cumulative graduation rate	71%	33%	22%	14%	14%	0%	0%

Table B2.1.5. PhD Students by Cohorts, Entering Between 2011–2012 and 2017–2018²⁶

	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						

²³ Official/Unofficial Leave of Absence students not counted: 1²⁴ Official/Unofficial Leave of Absence students not counted: 1²⁵ Official/Unofficial Leave of Absence students not counted: 1²⁶ 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
	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 ²⁷	19				
	# 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 ²⁸	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	5	7	14	22	21	17	24

²⁷ Official/Unofficial Leave of Absence students not counted: 1

²⁸ Official/Unofficial Leave of Absence students not counted: 1

	Cohort of Students	2011–2012	2012–2013	2013–2014	2014–2015	2015–2016	2016–2017	2017–2018
	year (or # entering for newest cohort)							
	# Students withdrew, dropped, etc.	0	0	0	1	0	0	0
	# Students graduated	3	1	6	4	0	0	0
	Cumulative graduation rate	85%	60%	42%	18%	0%	0%	0%

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 2018

	DrPH	PhD in Biostatistics	PhD in Environmental Health	PhD in Epidemiology	PhD in Health Services Research
# newly admitted in 2018	6	12	5	5	5
# currently enrolled (total) in 2018	47	42	19	25	21
# completed coursework during 2017	10	8	4	2	2
# advanced to candidacy (cumulative) during 2017	6	8	4	2	2
# graduated in 2017	5	6	2	3	4

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	
	n	%	n	%	n	%	n	%	n	%
MPH	366	94%	378	92%	343	92%	488	92%	441	90%
MA	6	83%	4	100%	6	100%	5	100%	6	100%
MS	14	79% ²⁹	18	78%	19	63%	19	68%	9	56%

²⁹ Two MS students graduated in six years, one year after the maximum time to completion.

Table B2.3.2. Cumulative Doctoral Graduation Rates by Degree Program, by Matriculation Date

	2007–2008		2008–2009		2009–2010		2010–2011		2011–2012	
	n	%	n	%	n	%	n	%	n	%
DrPH	10	60%	11	64% ³⁰	8	63%	8	88%	7	71%
PhD	9	78%	14	86%	21	86%	21	71%	27	85%

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 had 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 an 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 multiyear 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 schoolwide 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 guiding 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 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 semester 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.

³⁰ One DrPH student graduated in eight years, one year after the maximum time to completion.

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 that they may usher students through their degree programs.

B3. Post-Graduation Outcomes

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 graduates are available as Tables B3.1.1 – B3.1.5. The data includes all graduates for each academic year listed.

Table B3.1.1. Post-Graduation Outcomes for MPH and Dual Degree Students

MPH Degree	2016	2017	2018
Employed	357	348	339
Continuing education/training (not employed)	34	29	32
Not seeking employment or not seeking additional education by choice	9	1	2
Actively seeking employment or enrollment in further education	5	11	13
Unknown	27	19	14
Total	432	408	400
% employed	99%	97%	97%

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

MA Degree	2016	2017	2018
Employed	6	3	2
Continuing education/training (not employed)	3	2	5
Not seeking employment or not seeking additional education by choice	0	0	0
Actively seeking employment or enrollment in further education	0	0	0
Unknown	1	0	0
Total	10	5	7
% employed	100%	100%	100%

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

MS Degree	2016	2017	2018
Employed	8	6	7
Continuing education/training (not employed)	1	3	1
Not seeking employment or not seeking additional education by choice	0	1	0
Actively seeking employment or enrollment in further education	1	1	0
Unknown	1	0	1
Total	11	11	9
% employed	90%	90%	100%

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

DrPH Degree	2016	2017	2018
Employed	4	7	11
Continuing education/training (not employed)	0	0	0
Not seeking employment or not seeking additional education by choice	0	1	0
Actively seeking employment or enrollment in further education	0	0	0
Unknown	0	0	0
Total	4	8	11
% employed	100%	100%	100%

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

PhD Degree ³¹	2016	2017	2018
Employed	15	12	17
Continuing education/training (not employed)	0	0	0
Not seeking employment or not seeking additional education by choice	1	0	0
Actively seeking employment or enrollment in further education	0	0	0
Unknown	0	0	0
Total	16	12	17
% employed	100%	100%	100%

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, including an online survey and personal communication with staff in the [Career and Practicum Office](#). Each career advisor is assigned a cohort of graduates from across all degree programs. At graduation, career advisors contact each of their assigned graduates to request information on their employment status and to offer assistance with job searches for those who are seeking employment. As described in criterion [H2](#), career advisors work with graduates on all facets of the job search process, including résumé and cover letter reviews; networking advice and connections with alumni and others in their target fields; referrals into employer organizations for open positions; interview preparation; and helping graduates to evaluate career opportunities and negotiate offers. They also provide résumé and personal statement reviews for students pursuing further education.

Six months after graduation, each SPH graduate receives an employment survey from the Career and Practicum Office. The survey is open for approximately six weeks, and multiple reminders are sent if graduates do not respond. The school reports its six-month employment rate on its [website](#). At one-year

³¹ PhD graduates in post-doc positions are counted as employed.

post graduation, the Career and Practicum Office reviews any graduates who were seeking jobs or unknown at the six-month mark to see if they have secured jobs or are pursuing further education.

The school makes every effort to minimize the number of unknowns. Career Advisors use LinkedIn, Facebook, and Google to find information about the employment status of graduates who do not respond to emails or surveys.

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 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 to leverage career development opportunities. The Career 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 lifelong 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

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: focus groups and an annual School Survey.

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 and the 2018 ASPPH focus groups, 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 by 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.

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, 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 2017, 202 alumni completed the annual School Survey. 100% of MS and doctoral respondents were very confident, mostly confident, or confident in their ability to apply the program competencies in a professional capacity. The vast majority (see below) of MPH alumni reported that they were very confident, mostly confident, or confident in their ability to apply the program competencies in the field:

- 92% were confident in their ability to identify the determinants of health and disease
- 88% were confident in their ability to estimate the burden and patterns of disease in communities in order to prioritize health needs
- 100% were confident in their ability to use systematic approaches to develop, implement, and evaluate public health policies, programs, or services
- 100% were confident in their ability to communicate effectively to promote the health of all members of our communities, especially the disadvantaged, underserved, and vulnerable
- 85% were confident in their ability to demonstrate the ability to access and use data to identify and solve public health problems
- 100% 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
- 100% 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
- 100% were confident in their ability to demonstrate professional knowledge and skills for effective practice in a selected field of study

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

Results from alumni focus groups are available as [ERF B4.2.1](#).

The School Survey alumni survey and findings 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. Beginning in Fall 2018, the 27 foundational competencies will be grouped into eight themes to collect alumni competency achievement data. The addition of 27 competency achievement questions in the School Survey may be burdensome to alumni and may impact the survey completion rate, thus eight themes will be included instead. Competency mastery will also become the cornerstone of future focus group discussions.

B5. Defining Evaluation Practices

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 10 areas that align with the mission, values, and core purpose. These 10 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 toward achieving the measures identified on the strategy map is the responsibility of the GC. Each fall, the GC reviews data on the progress toward 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 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, sit on the GC, and serve as the bridge between the committees.

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 multidimensional response to the evaluation questions, and progress toward 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 school's evaluation measures reflect the core purpose to Think. Teach. 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 a full seven-year term			
Data collection systems	Process measure – met	Strategy map	Governing Council (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			

Evaluation measures	Data collection method for measure	Evaluation plan	Responsibility for review
School ranking	<i>US News & World Report</i>	Strategy map	GC
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 the GC
Students participating in scholarship	Master's students: School Survey; doctoral students: annual report	Strategy map; research evaluation plan	Research Committee which reports findings to the 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 the 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, six-month Career and Practicum Office survey, alumni focus groups, Career PREP evaluation (pre-, post-, and one-year follow-up surveys)	Educational evaluation plan	EES which reports findings to the Education Committee, which reports findings to the GC
Proportion of faculty working with students on research	Annual Faculty Review	Research evaluation plan	Research Committee which reports findings to the 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 the 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 the 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 the GC
Professional presentations by faculty	Annual Faculty Review	Strategy map; research evaluation plan	Research Committee which reports findings to the 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 the GC
Grant submissions and awards, annually	SAP	Research evaluation plan	Research Committee which reports findings to the 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 the 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 the 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 the 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.

Table B1.1.2. maps the school's strategy map objectives to advancing the field and promoting student success.

The educational evaluation plan is explicitly designed to measure student success, first through measuring students' 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.

The research evaluation plan has measures designated as promoting student success and advancing the field. For example, increasing the number of faculty-student research collaborations is one measure related to promoting student success. Increasing the number of faculty presentations advances the field of public health by ensuring faculty research is shared widely.

The practice evaluation plan seeks to promote student success through educating SPH students as culturally competent public health practitioners. It also seeks to advance the field of public health through advocating for improved public health policy.

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. Promoting 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 byproduct 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

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 Governing Council. 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 an 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 retrained 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 cross-disciplinary case studies that allowed multiple core course 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 schoolwide education retreats annually and monthly teaching collaborative meetings to discuss best practices in teaching. These workshops highlight innovative and best practices in pedagogy as well as 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 the health concerns of public housing residents. 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 the 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 was 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

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: (i.) operational costs (schools define "operational" in their own contexts; definition must be included in response); (ii.) student support, including scholarships, support for student conference travel, support for student activities, etc.; and (iii.) 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 with an independent budget model whereby the school keeps all revenue and directly pays for most of its expenses. A key part of this model is a reserve fund that is added to in surplus years and deducted from in deficit years. 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 of Administration.

- a. Faculty salaries are paid through a combination of school funds, which cover the 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 a 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.
- b. The school may create new faculty and staff positions as the need arises. Faculty positions are requested by a department chair or center director and approved by the Dean, in consultation with the Associate Dean for Research and Faculty Advancement. Staff positions are requested by the proposed supervisor and must be approved by head of the unit (department chair, center director, office director, or associate dean, depending on the unit) and the Dean, in consultation with the school's Office of People Services and the Associate Dean for Administration. The director of People Services works with university Human Resources to ensure that staff positions and salaries align with similar positions across the university.
- c. i. Operational costs include all school-related, non-sponsored items such as faculty and staff salaries, furnishings, supplies, travel, etc. These costs are funded by the faculty salary mechanisms described in C1.1.a or through tuition dollars.

- ii. Student support, scholarships, student conference travel, and student activities are funded by tuition funds.
- iii. The school funds several types of faculty development funds. Each faculty member who is at least 50% effort receives \$2,000 annually in discretionary funds. These funds may be used to fund conference fees, travel, or other professional development activities and are funded by tuition dollars. Faculty may apply for pilot awards of up to \$20,000 for education or research projects designed to launch a junior faculty member's career or to assist senior faculty prove proof of concept. School funding, specifically tuition dollars, was the key source of these funds until 2016 when pilot projects began being funded by donations. Finally, the school, campus, and university host professional development programs, including a grant-writing program, a campuswide leadership program, and university services through the Center for Teaching and Learning. School programs are funded by tuition dollars, and campus and university programs are funded by their respective organizers. The school contributes to funding these activities through the university tax and campus costs.
- d. As an independent budget center, the school obtains additional funds for operating costs, student support, and faculty development by increasing one of its three key sources of revenue: tuition dollars, grant overhead, or endowment payout funds. Of note, tuition rates are set by the university, and the school's strategy map does not call for an increase in enrollment in the school's professional or doctoral degrees.
- e. Tuition is a key source of revenue for the school. Tuition and fees are set by the Trustees of Boston University for each academic year, processed by the university's Student Accounting Services, and provided directly to the school.
- f. Indirect costs associated with grant and contracts are processed by the university's Post Award Financial Operations office and provided directly 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, FY2014 to FY2018

	Year 1 FY2014	Year 2 FY2015	Year 3 FY2016	Year 4 FY2017	Year 5 FY2018
Source of Funds					
Tuition and Fees	34,207,807	34,060,713	35,848,643	35,037,718	42,036,287
State Appropriation	0	0	0	0	0
University Funds	0	0	0	0	0
Grants/Contracts	30,389,090	30,213,128	31,741,586	35,215,166	31,075,690
Indirect Cost Recovery	8,012,618	8,202,260	8,809,309	9,874,713	9,376,103
Endowment Spendable	189,820	188,197	251,157	196,142	254,299
Gifts	391,376	485,925	340,838	339,612	973,900
Other (designated funds)	2,304,179	4,124,388	8,393,315	8,994,227	2,801,744
Other (Dean's Reserve ³²)	0	0	(1,548,081)	(3,562,579)	(1,265,952)
Total	75,494,890	77,274,611	83,836,767	86,094,999	85,252,071

³² Dean's Reserves are used to invest in strategic projects, including the renovation and addition of classrooms.

Expenditures					
Faculty Salaries and Benefits	22,518,142	24,835,997	24,555,216	25,957,055	26,462,815
Staff Salaries and Benefits	16,153,784	16,768,737	18,590,748	20,008,168	20,761,442
Operations	14,905,621	14,585,587	16,891,996	19,237,614	14,886,756
Travel	911,155	1,123,849	1,374,634	1,773,402	1,615,445
Student Support	8,353,828	8,734,077	9,121,262	8,119,861	10,794,995
University Tax	550,929	2,411,384	2,480,751	2,518,402	3,526,000
Other (transfer out)	2,597,399	535,677	2,525,000	(4,677)	(870,405)
Other (campus costs)	9,504,032	8,279,303	8,297,159	8,485,174	8,075,023
Total	75,494,891	77,274,611	83,836,767	86,094,999	85,252,071

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 toward 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 a wide berth over setting strategic directions and aligning a budget with its self-determined strategic goals and aspirations. Campus and university expenses are allocated to the school based on usage, and therefore the school has input in decisions that involve the campus expenses. 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 the future, and then to follow up that plan with strategic restructuring of the school and hiring that aligns with that 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 judgment of the Dean and leadership team than are other schools that are centrally budgeted and can lean on the judgment and administrative backing of the rest of the university. If implemented effectively, this approach can be a strength; however, 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 inexpensively than SPH would be able to procure independently (e.g., security); but in other ways, 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 using central services, the centrally administered resources are enmeshed with the university and include many complexities. This often makes it unrealistic to seek outside vendors, which also brings strengths and weaknesses.

The school has been advocating for two areas of improvement. First, tuition is set at a per-credit rate up to 12 credits and a flat, full-time rate for 12–18 credits. Because many SPH courses are four credits, students who wish to take three classes during a semester are charged a full-time tuition rate, dramatically increasing their per-credit cost. The school has requested that the university consider a per-credit model for all graduate programs, which would allow students' maximum flexibility in their course scheduling.

The school has also been working to increase indirect costs on grants through a series of internal policy changes and new negotiated arrangements with partner organizations. Conversations are ongoing.

C2. Faculty Resources

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 Faculty

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					
Environmental Health	Jennifer Schlezinger 1.0	Junenette Peters 1.0	Birgit Claus Henn 1.0	Jon Levy 1.0	PIF: 11 Non-PIF: 7
MS					
PhD					
Epidemiology	Ann Aschengrau 1.0	Matthew Fox 1.0	Daniel Brooks 1.0	Martha Werler 1.0	PIF: 10 Non-PIF: 28
MS					
PhD					
Health Services Research	Mari-Lynn Drainoni 1.0	Lewis Kazis 1.0	Megan Cole Brahim 1.0	Steven Pizer 1.0	PIF: 7 Non-PIF: 27
MS					
PhD					
Public Health Nutrition	Monica Wang 1.0	Jessica Leibler 1.0	Madeleine Scammell 1.0	NA	PIF: 3 Non-PIF: 5
MS					
Community Assessment, Program Design, Implementation, and Evaluation	Candice Belanoff 1.0	Daniel Merrigan 1.0	Lois McCloskey 1.0	NA	PIF: 5 Non-PIF: 12
MPH					
Design and Conduct of Public Health Research	Timothy Heeren 1.0	Gina Peloso 1.0	Howard Cabral 1.0	NA	PIF: 4 Non-PIF: 2
MPH					
Environmental Health	Wendy Heiger-Bernays 1.0	Jean van Seventer 1.0	Thomas Webster 1.0	NA	PIF: 7 Non-PIF: 8
MPH					
Epidemiology and Biostatistics	Michael LaValley 1.0	Jacqueline Hicks 1.0	Lauren Wise 1.0	NA	PIF: 24 Non-PIF: 25
MPH					
Health Communication and Promotion	Ziming Xuan 1.0	Carol Dolan 1.0	Michael Siegel 1.0	NA	PIF: 5 Non-PIF: 10
MPH					
Health Policy and Law	Alan Sager 1.0	David Jones 1.0	Wendy Mariner 1.0	NA	PIF: 6 Non-PIF: 8
MPH					
Healthcare Management	Chris Louis 1.0	David Rosenbloom 1.0	David Jernigan 1.0	NA	PIF: 5 Non-PIF: 13
MPH					

CONCENTRATION	MASTER'S			DOCTORAL	ADDITIONAL FACULTY
	PIF 1	PIF 2	FACULTY 3	PIF 4	
Global Health Program Design, Monitoring, and Evaluation	Peter Rockers 1.0	Nancy Scott 1.0	Andrew Stokes 1.0	NA	PIF: 4 Non-PIF: 8
MPH					
Program Management	Jen Beard 1.0	Taryn Vian 1.0	Monica Onyango 1.0	NA	PIF: 11 Non-PIF: 12
MPH					
Public Health Practice	Jacey Greece 1.0	Megan Healey 1.0	Yvette Cozier 1.0	NA	PIF: 5 Non-PIF: 5
MPH, Executive					

CONCENTRATION	DOCTORAL			ADDITIONAL FACULTY
	PIF 1	PIF 2	FACULTY 3	
Leadership, Management, and Policy	Eugene Declercq 1.0	Harold Cox 1.0	Lora Sabin 1.0	PIF: 7 Non-PIF: 6
DrPH				

Table C2.1.2. Total Faculty Represented in Table C2.1.1.

	Headcount
Named PIF	52
Total PIF	118
Non-PIF	183

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)

Effort is based on a mix of activities, including engagement with the school in teaching, research, administration, service, and citizenship. Percent effort is calculated using the following guidelines:

- Coverage for teaching is based on 15% for a four-credit course and is prorated based on the number of instructors (i.e., 7.5% per instructor for co-teaching) or credits (i.e., 7.5% for teaching a two-credit course). Importantly, teaching coverage is applied to a 12-month salary and not limited to the month(s) when the course is taught. Therefore, the 15% coverage for a course is intended to include student advising both directly related to the specific course and in general. There is no differential coverage for courses according to differences in size or structure. Instead, such differences are addressed by adjusting the amount of TA and grader support as necessary to ensure equity and quality.
- Coverage for research/scholarship is expected to be via external funding sources. Faculty with low extramural funding coverage are expected to take on more teaching or other administrative roles (e.g., leadership of educational programs) that fall outside the remit of service and citizenship activities. Faculty with higher-than-expected extramural coverage may consider decreasing these other activities, recognizing that such changes require time to make alternative arrangements.

- Coverage for administrative positions is allocated for defined roles, including but not limited to deans, chairs, center directors, academic program directors, and certificate directors. These roles are assigned by the Dean or department chair, and are associated with a defined amount of salary coverage that varies by position (but is consistent among all faculty who serve in the same position).
- Coverage for service and citizenship is set at a maximum of 10% of a faculty member's overall effort, reflecting our collective and fundamental responsibility for engaging in such activities.

Using these guidelines, each faculty member assembles a portfolio of activities for the year. Unmodified faculty typically teach two four-credit courses (30%), conduct research (60%), and participate in service and citizenship (10%). Lecturers may typically be 90% teaching (i.e., six courses at 15% per course) and 10% for service/citizenship. Research faculty are typically 90% extramurally funded research and 10% for service/citizenship. Faculty in these tracks are not constrained to these mixes of activities; each faculty member designs their own mix of activities. Faculty propose a mix of activities, as well as the associated percent effort, each year as part of the Annual Faculty Review. These activities are then discussed with and formalized by the department chair. By definition, full-time faculty have a mix of activities totaling 100%, and are included in C2.1 and E1 as primary instructional faculty.

Non-primary instructional faculty include: (a) faculty who hold a primary appointment at SPH and are less than 100% FTE; (b) faculty who hold a primary appointment at SPH who do not have SPH as their primary employer (typically faculty at the VA or Slone Epidemiology Center); (c) faculty with secondary appointments; and (d) faculty with adjunct appointments. Faculty who hold a primary appointment at SPH and have a total percent effort less than 100% (a) calculate their percent effort in the same way as primary instructional faculty. Faculty who do not have SPH as their primary employer (b, c, and d) are not compensated for service and citizenship, and receive a fixed rate for teaching. These faculty are encouraged to collaborate on grants, and are compensated using a percent effort calculation for grant-based funding.

These guidelines are available to faculty in the [Faculty Handbook](#). Compensated primary faculty also complete a table detailing their percent effort as part of the Annual Faculty Review.

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 master's students and 2.2 doctoral students; and on average, non-PIF advise 4.9 master's students and 5.6 doctoral students. The data presented in Table C2.4.1 is skewed by the faculty directors of master 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	6.45	1	29
Doctoral	2.12	1	12

As described in criterion H2, SPH has a highly skilled and active **Career 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	2	1	3

c. MPH integrative learning experience advising

Table C2.4.3. Advising for the MPH Integrative Learning Experience

Average	Min.	Max.
5.07	2	22

d. DrPH student advising

Table C2.4.4. Mentoring and Primary Advising on DrPH Integrative Learning Experience

Average	Min.	Max.
1.7	1	5

e. PhD student advising

Table C2.4.5. Mentoring and Primary Advising on PhD Dissertations

Average	Min.	Max.
1.44	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.
1.84	1	6

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

- a. Class size and its relation to quality of learning (e.g., The class size was conducive to my learning)
- b. Availability of faculty (i.e., 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. In order to ensure that faculty are fully supported in their advising responsibilities, an MPH advising guide was created and approved by the Education Committee. The MA, MS, and doctoral programs have a long tradition of program guides which serve as advising resources for faculty.

The advising and educational needs of students have changed over time. For example, a large portion of students are coming straight from undergraduate study, and many have completed a public health major or related coursework. This new demographic requires careful course planning to ensure that foundational content is not redundant. Students are also looking to keep down tuition costs by completing the program in an accelerated format. In Spring 2018, a new faculty MPH director was appointed to address these challenges and to provide support for faculty and staff in advising as well as in meeting the educational needs of students.

C3. Staff and Other Personnel Resources

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 212 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 Function

Central Services	Staff Headcount
Activist Lab	8
Communications	5
Development and Alumni Relations	4
Education Team	
Admissions	5
Career and Practicum Office	10
Education Dean's Office	4
Graduate Student Life	4
Lifelong Learning	4
Registrar	4
Facilities and Operations	1
Faculty Resources	4
Finance	5
Office of the Dean	6
People Services ³³	2
Sponsored Research Administration	1
Total	67

Departmental Support	Staff Headcount
Administrative Director	7
Administrative Assistant	7
Academic Program Administrator/Coordinator	9
Finance and Grant Manager	8
Total	31

Research	Staff Headcount
Data Manager/Statistical Analyst	14
Postdoctoral Associate	9
Research Assistant	26
Research Coordinator	7
Research Manager	15

³³ People Services works closely with and supplements activities provided by university Human Resources.

Research	Staff Headcount
Research Scientist/Fellow	16
Total	87

Service Center	Staff Headcount
Biostatistical and Epidemiology Data Analytic Center (BEDAC)	27
Total	27

Total SPH Staff as of 6/28/18	212
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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)

Many students are employed by BU while they complete their graduate studies, either as student employees or staff members. Staff positions may be full-time or part-time, and are typically as researchers or administrative support. Student jobs are limited to no more than 20 hours per week and include being a teaching assistant or grader. These roles are generally reserved for second-year students who are in good academic standing.

The school also relies on the student support services available to all BU 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 are 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](#), the [Career 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. Students report high levels of satisfaction on the annual School Survey with these professional staff advisors (60% were very satisfied or satisfied in 2017) and career services advisors (71% were very satisfied or satisfied).

Central administration provides support to all members of our SPH community in organizational management, operational oversight, and leadership toward achieving the overall mission of 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 the Career and Practicum Office who now support more than 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 operational support; has strategically hired in finance, sponsored research, and staff development; and is staffed to make progress toward 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.

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 experienced, 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 to the current offerings at SPH and BU, staff may apply for career development scholarships for funding of courses or other training experiences offered by professional organizations.

C4. Physical Resources

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 in 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, the **Admissions Office**, the Registrar's Office, **Graduate Student Life**, and the **Career 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 a modern building leased by SPH which is located at 801 Massachusetts Avenue. 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.³⁴

The **Instructional Building**, also known as the L-Building, is the main classroom building for SPH and the Medical School, and is home to the Alumni Medical Library, as well as 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 contains 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 campuswide 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 in the Boston area. Fuller houses the school's Biostatistical and Epidemiology Data Analytic Center (BEDAC) as well as the university Ombuds.³⁵

³⁴ Human Resources and Information Technology are utilized by the SPH community but, as university services, are not included in the space calculations.

³⁵ The Ombuds office is utilized by the SPH community but, as a university service, is not included in the space calculations.

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	159	20,043	4	3,040	9	2,245	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	28	3,768			2	618				
A Building			1	2,322						
670 Albany			1	4,763						
Total	376	49,821	55	49,960	26	7,368	16	2,966	9	3,790

Faculty and Staff Office Space

The Talbot and Crosstown buildings provide 316 of the 351 faculty and staff offices; the remaining 35 offices are in the Fuller and Housman buildings. Full-time faculty and staff have their own workspace, 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 which 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	69	10,174	121	14,426	190	24,600
Crosstown	77	11,051	49	8,277	126	19,328
Fuller	0		27	3,768	27	3,768
Housman	3	554	5	431	8	985
Total	149	21,779	202	26,902	351	48,681

Classrooms

Fifty-four classrooms, including four 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.

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	947
Conference room	4	77					4	77
Computer lab	5	113					5	113

Type	Small (1–30 occupancy)		Medium (31–60 occupancy)		Large (61–320 occupancy)		Total	
	#	Capacity	#	Capacity	#	Capacity	#	Capacity
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	3,913

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 that is among the first of its kind. It serves to 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 a 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 is a state-of-the-art audiovisual 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 more than 300 students at any given time, available to SPH students across BUMC. These spaces are first come, first serve and include 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 up to 120 occupants.

Laboratories

SPH has 4,300 square feet 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. They 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 workspaces 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, breakout 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 of 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 campuswide 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. Students may also use the Live25 app to find quiet study space or rooms for group projects. The rollout 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

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); and
- 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 Resources³⁶

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; and 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 BU 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 the eight 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 Ex Libris 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.

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 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.

³⁶ Boston University recently retained a leading architectural firm to plan a major renovation of the Alumni Medical Library, which will likely be completed toward the end of 2019. Project plans have not yet been released.

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 campuswide 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 one 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 such as LabVIEW, Maple, Mathematica, MATLAB, and S-PLUS. Several utility software are also provided via site licensing, such as McAfee VirusScan, PaperCut, FTP, VPN, and X Window System. SPH also uses Blackboard Learn, BU's online course management software.

Faculty Access to Hardware and Software

Faculty and staff members each 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 2018

Training	Date	Time	Room
WordPress Intro	July 3, 2018	2:00PM – 3:30PM	R107
WordPress Level 2	July 5, 2018	2:00PM – 3:30PM	R107
Kaltura/MyMedia Intro	July 10, 2018	10AM – 11:30AM	R107
Blackboard (LMS) Intro	July 13, 2018	2:00PM – 3:30PM	R107
Qualtrics Intro (Surveys)	July 17, 2018	2:00PM – 3:30PM	R107
Echo360 Active Learning Platform	July 19, 2018	2:00PM – 3:30PM	R107
TurningPoint 8 (ARS)	July 23, 2018	10AM – 11:00AM	R107
WordPress Intro	August 2, 2018	2:00PM – 3:30PM	R107
WordPress Level 2	August 7, 2018	2:00PM – 3:30PM	R107
Kaltura/MyMedia Intro	August 14, 2018	10AM – 11:30AM	R107
Qualtrics Intro (Surveys)	August 15, 2018	2:00PM – 3:30PM	R107
Blackboard (LMS) Intro	August 16, 2018	2:00PM – 3:30PM	R107
Echo360 Active Learning Platform	August 22, 2018	2:00PM – 3:30PM	R107
WordPress Intro	September 4, 2018	2:00PM – 3:30PM	R107
TurningPoint 8 (ARS)	September 5, 2018	10AM – 11:00AM	R107
WordPress Level 2	September 6, 2018	2:00PM – 3:30PM	L1110
Kaltura/MyMedia Intro	September 12, 2018	10AM – 11:30AM	R107
Blackboard (LMS) Intro	September 14, 2018	2:00PM – 3:30PM	R107
Qualtrics Intro (Surveys)	September 17, 2018	2:00PM – 3:30PM	R107
Echo360 Active Learning Platform	September 19, 2018	2:00PM – 3:30PM	R107
TurningPoint 8 (ARS)	September 26, 2018	10AM – 11:00AM	R107

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 deterrence and to enable the 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

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 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; 10 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	Specific component (reading, lecture, discussion)
1. Explain public health history, philosophy, and values	PH700: Foundations of Public Health	Online exam for Module 1: Foundations of the Profession and Science of Public Health
2. Identify the core functions of public health and the 10 Essential Services*	PH700: Foundations of Public Health	Online exam for Module 1: Foundations of the Profession and Science of Public Health
3. Explain the role of quantitative and qualitative methods and sciences in describing and assessing a population's health	PH700: Foundations of Public Health	Online exam for Module 1: Foundations of the Profession and Science of Public Health

Content	Course number(s) or other educational requirements	Specific component (reading, lecture, discussion)
4. List major causes and trends of morbidity and mortality in the United States or other community relevant to the school	PH700: Foundations of Public Health	Online exam for Module 1: Foundations of the Profession and Science of Public health
5. Discuss the science of primary, secondary, and tertiary prevention in population health, including health promotion, screening, etc.	PH700: Foundations of Public Health	Online exam for Module 1: Foundations of the Profession and Science of Public Health
6. Explain the critical importance of evidence in advancing public health knowledge	PH700: Foundations of Public Health	Online exam for Module 1: Foundations of the Profession and Science of Public Health
7. Explain the effects of environmental factors on a population's health	PH700: Foundations of Public Health	Online exam for Module 3: Factors Related to Human Health
8. Explain the biological and genetic factors that affect a population's health	PH700: Foundations of Public Health	Online exam for Module 2: Biological Foundations for Public Health
9. Explain the behavioral and psychological factors that affect a population's health	PH700: Foundations of Public Health	Online exam for Module 3: Factors Related to Human Health
10. Explain the social, political, and economic determinants of health and how they contribute to population health and health inequities	PH700: Foundations of Public Health	Online exam for Module 3: Factors Related to Human Health
11. Explain how globalization affects global burdens of disease	PH700: Foundations of Public Health	Online exam for Module 3: Factors Related to Human Health
12. Explain an ecological perspective on the connections among human health, animal health, and ecosystem health (e.g., One Health)	PH700: Foundations of Public Health	Online exam for Module 3: Factors Related to Human 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

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 is detailed in the SPH [bulletin](#) as indicated below.

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

All MPH candidates 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 Health: 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/
- Global Health Program Design, 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/jdmph/
- 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.

MBA/MPH students are waived from PH718 Leadership and Management for Public Health upon successful completion of PH978 Public Health Practicum for Dual Degree MBA-MPH Students. These students demonstrate the MPH foundational competencies as detailed in Table D2.2.3.

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 project 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 of the data analysis, and conclusions. The final written report includes identification of two potential sources of bias in the study along with direction of each bias: toward 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.
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 project designed to synthesize and apply quantitative methods for public health. Teams have access to four data sets with supporting documentation. Each team will choose one data set and develop a research question that is addressable in that data set. 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.

Competency	Course	Assessment
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 measures of association. A final section describes the implications for public health policy or practice.
Public Health and Healthcare 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 healthcare spending and outcomes on selected measures in the United States 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 material to guide the most appropriate approach to the problem.
		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 and 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 material—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.
		Strategy Outline: As the third 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 weaknesses of existing strategies designed to address the health problem.

Competency	Course	Assessment
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 and 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 and 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 third 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 weaknesses 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>
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 and 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>

Competency	Course	Assessment
		<p>Strategy Outline: As the third 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>
<p>9. Design a population-based policy, program, project, or intervention</p>	<p>PH719: Health Systems, Law, and Policy</p>	<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>PH720: Individual, Community, and Population Health</p>	<p>Policy Paper: Students evaluate a current issue in healthcare or public health policy. Students analyze the evidence for and against adopting a specific policy or program, including the legal, political, and financial factors, and make a recommendation for or against its implementation.</p> <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 and 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 third 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 the 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 a 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 and 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 third 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 the multiple dimensions of the policymaking 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, and 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 a 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 the 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 healthcare or public health policy and give recommendations to policymakers or stakeholders, based on relevant evidence. If a policy is in place, the 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 and 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 a 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 or 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 a 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, the 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 a 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 the 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 and 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 third 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 and Situation Analysis, Determinants Analysis, and Strategy Recommendations in a professional poster format. Students meet this competency in the delivery of a product that 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 healthcare teams.” Health and Social Work. 41(2):101–109. Students write and submit talking points, a question, and a quotation about the reading.

Competency	Course	Assessment
		<p>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 that diverse professional experiences, knowledge, and perspectives are reflected in each team’s deliverables.</p>
Systems Thinking		
<p>22. Apply systems thinking tools to a public health issue</p>	<p>PH718: Leadership and Management for Public Health</p>	<p>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 or 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.</p>
	<p>PH719: Health Systems, Law, and Policy</p>	<p>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.</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. 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.</p>

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 and 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 the 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 Healthcare Systems		
5. Compare the organization, structure, and function of health care, public health, and regulatory systems across national and international settings	JD856: Healthcare Law	Oral Presentation: Students compare healthcare spending and outcomes on selected measures in the United States 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: Healthcare Law	Written Assignments and Oral Presentations: Students prepare separate analyses of whether and how up to eight specific public health policies 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 the 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: Healthcare Law	Written Examination: Students evaluate at least two 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 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 policymaking process, including the roles of ethics and evidence	JD856: Healthcare Law	Written Examination: Students evaluate at least two 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, explain the advantages and disadvantages of each, and recommend a solution. Students 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: Healthcare 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: Healthcare 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	
Communication		
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: Healthcare Law	<p>Written and Oral Presentations: Students prepare eight 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, 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>

Table D2.2.3. Mastery of MPH Foundational Competencies for MBA/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	

Competency	Course	Assessment
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		See Table D2.2.1 Covered by PH719: Health Systems, Law, and Policy
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		See Table D2.2.1 Covered by PH719: Health Systems, Law, and Policy and PH720: Individual, Community, and Population Health

Competency	Course	Assessment
10. Explain basic principles and tools of budget and resource management	AC710: Financial Reporting and Analysis	Midterm Exam: the exam assesses students' ability to prepare financial statements, and their understanding of financial statement analysis, revenue recognition, and current assets. The assignments assesses students' their understanding of basic principles and tools that they can use in budget and resource management.
11. Select methods to evaluate public health programs	See Table D2.2.1 Covered by PH719: Health Systems, Law, and Policy	
Policy in Public Health		
12. Discuss multiple dimensions of the policy-making process, including the roles of ethics and evidence	See Table D2.2.1 Covered by PH719: Health Systems, Law, and Policy	
13. Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes	PH978: Public Health Practicum for Dual Degree MBA-MPH Students [Also covered by PH719: Health Systems, Law, and Policy]	Final Individual Presentation: Students work individually to develop a presentation highlighting the learnings from their public health practicum. The practicum occurs prior to this course and this presentation is a reflective assignment that builds on their experiences. This assignment has students link organizational activities to external public health stakeholders and describe how partnerships with these stakeholders can be beneficial to the organization.
14. Advocate for political, social or economic policies and programs that will improve health in diverse populations	See Table D2.2.1 Covered by PH719: Health Systems, Law, and Policy and PH720: Individual, Community, and Population Health	
15. Evaluate policies for their impact on public health and health equity	See Table D2.2.1 Covered by PH719: Health Systems, Law, and Policy	
Leadership		
16. Apply principles of leadership, governance and management, which include creating a vision, empowering others, fostering collaboration and guiding decision making	OB713: Leading Organizations and People	Leadership Development Paper: requires students to apply principles that they have learned in the courses as part of a comprehensive analysis and an action plan for their continued personal and leadership development. This assignment requires students to apply principles of leadership, governance and management as part of an analysis of their own leadership development.

Competency	Course	Assessment
17. Apply negotiation and mediation skills to address organizational or community challenges	OB713: Leading Organizations and People	Leadership Development Paper: requires students to apply principles that they have learned in the courses as part of a comprehensive analysis and an action plan for their continued personal and leadership development. This assignment requires students to discuss their leadership skills such as negotiation and mediation as part of an analysis of their leadership development.
Communication		
18. Select communication strategies for different audiences and sectors	ES722: Executive Communication Skills	Presentations for MBA Module 1 Integrated Project and Module 2 Simulation: Students present the results from an integrated project, which incorporates content from their accounting, economics and quantitative methods courses and a simulation, which incorporates content from their marketing, operations and finance courses. Students' presentation skills are assessed and they are provided with feedback as part of their Executive Communication Skills course (ES722). Students must select oral and visual communication strategies for different audiences and sectors as part of their cross-functional presentations.
19. Communicate audience-appropriate public health content, both in writing and through oral presentation	PH978: Public Health Practicum for Dual Degree MBA-MPH Students [Also covered by PH720: Individual, Community, and Population Health	Final Presentation: Students work individually to develop a reflective presentation based on their practicum experience. The five-minute PowerPoint presentation must address organizational issues including: (1) the organizations connection to public health, (2) the ways in which the organization's mission and activities relate to public health, and (3) how the student's summer projects relate to public health. These assignments cover the competency because students must select oral and visual communication strategies to clearly and persuasively discuss how their practicum learnings relate to a public health topic or set of topics.
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	ES721: Teaming	Team Learning Assistant Assessment: As part of their MBA Teaming course, students provide each other with feedback via a software called the Team Learning Assistant at the conclusion of each module of the MBA core. This tool provides insight on each student's performance within the team, and is also used by the faculty for grading. The TLA assessment has students both provide and receive feedback on their performance on interprofessional teams. The results from the TLA assessment are also used by faculty to provide coaching in order to improve performance.
Systems Thinking		

Competency	Course	Assessment
22. Apply systems thinking tools to a public health issue	PH978: Public Health Practicum for Dual Degree MBA-MPH Students [Also covered by PH719: Health Systems, Law, and Policy and PH720: Individual, Community, and Population Health]	In-class Group Assignment: Students work in teams to apply the tools and principles of systems thinking to a public health issue they worked on or learned about in their public health practicums. They identify the issue, discuss how they applied the principles of systems thinking, and present a brief summary of their learnings to the class. Students synthesize systems thinking tools and concepts and consider how leaders apply them in a real-world setting.

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

The Fall 2018 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 successful completion of 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.

The integrated core replaces the prior requirement of six discipline-specific courses (e.g., biostatistics, environmental health, epidemiology, health law, health policy and management, and social and behavioral sciences). It has been a challenge to ensure adequate coverage of all the new competencies in the new integrated core curriculum, but faculty continue to update and revise courses each semester. An area that needs more attention in the new curriculum is qualitative analysis, which was not covered in the prior core, but one that should be robustly covered in the integrated core curriculum. PH717, Quantitative Methods for Public Health, includes an introduction and framing of the complementary nature of qualitative and quantitative methods and an assessment on qualitative data collection methods. PH720, Individual, Community, and Population Health, also includes sessions on qualitative analysis and assessments on coding. These are examples of first steps toward a more robust treatment of qualitative methods, a work in progress.

D3. DrPH Foundational Competencies

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. 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	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	PH844 – Introduction to Qualitative Methods	Qualitative Evaluation or Research Proposal: This assignment will include <ul style="list-style-type: none"> ▪ An 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.
	PH851 - Community Needs Assessment and Systems Analysis	Presentation: Overview of data sources at the subnational level in the United States 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 health outcomes studied in the catchment area at present, over time, and in a comparative context;

Competency	Course	Assessment
		<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 five 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; and ▪ 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.
	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.
	PH858 - Cases in Public Health Management	<p>Written Case Study and Presentation: Students must write a case study that analyzes a managerial policy 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	PH854 - Program and Policy Evaluation	Final Policy/Program Evaluation Plan: (see Table D3.2.1, competency 1)
	PH844 - 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 and national surveys in assessing, monitoring, and evaluating policies	PH851 - Community Needs Assessment and Systems Analysis	<ul style="list-style-type: none"> ▪ Presentation: Students must prepare an overview of data sources at the subnational level in the United States and abroad. (Part of participation grade.) ▪ Context Paper: Students must draw upon and discuss the strengths and limitations

Competency	Course	Assessment
and programs and to address a population's health		of relevant national survey data to describe a population of interest in the student-selected catchment area in terms of relevant health risk factors.
	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	PH866 - DrPH Leadership Seminar (Spring)	Presentation of a Shared Vision to improve health services in a developing country or 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 the purposes of influencing behavior and policies	PH851 - 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	<ul style="list-style-type: none"> ▪ Communication Plan: Students must develop six media executions to communicate health intervention to various audiences, including press

Competency	Course	Assessment
		<p>releases, letters to the editor, online discussion/forum, social media, etc.</p> <ul style="list-style-type: none"> ▪ 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.
<p>6. Integrate knowledge, approaches, methods, values, and potential contributions from multiple professions and systems in addressing public health problems</p>	<p>PH853 - Managing and Implementing Public Health Programs</p>	<p>Multipart 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 a 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.
		<p>Final Presentation to Class Clients/Potential Funders (see Table D3.2.1, competency 5)</p>

Competency	Course	Assessment
	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 professionals 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)
8. Facilitate shared decision-making through negotiation and consensus-building methods	PH866 - DrPH Leadership Seminar (Spring)	Personal Vision Exercise: To be successful leaders, students must be able to align and mobilize teams and organizations around a shared vision of the outcomes they want to achieve. Students will have the opportunity to create and share their own personal vision for the future. (part of class participation grade)
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, competency 1)
	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)
	PH866 - 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

Competency	Course	Assessment
11. Assess one's own strengths and weaknesses in leadership capacities including cultural proficiency	PH866 - 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	PH853 - Managing and Implementing Public Health Programs	Adoption, Implementation, and Sustainability Plan that incorporates human resources alignment, supplies and facilities management, and budget and information management. (see Table D3.2.1, competency 6)
	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.
13. Cultivate new resources and revenue streams to achieve a strategic goal	PH853 - 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	PH851 - 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)
	PH853 - Managing and Implementing Public Health Programs	Adoption, Implementation, and Sustainability Plan that incorporates human resources alignment, supplies and facilities management, and 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 that: <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;

Competency	Course	Assessment
		<ul style="list-style-type: none"> ▪ 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.
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	PH866 - 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 - Managing and Implementing Public Health Programs, PH854 - Program and Policy Evaluation, PH866 - DrPH Leadership Seminar (Spring)	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	Multipart 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	Intervention Options Presentation: Students will prepare a presentation on alternative approaches to communication that are most effective in encouraging behavior change that:

Competency	Course	Assessment
		<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 advanced 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.

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

Since the program was specifically established to prepare individuals for public health field leadership rather than an academic career, there has been less emphasis on DrPH competency 20. Accordingly, competencies pertaining to pedagogy or promoting learning experiences are addressed but do not receive repeated, thorough emphasis in the DrPH program.

Nonetheless, DrPH students receive considerable training in communication which can translate into the 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.

D4. MPH and DrPH Concentration Competencies

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. Students plan and collect multiple, varied forms of data and incorporate stakeholder input to guide community health needs assessment.
		Final Written Report and 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 changes 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 and 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.

Competency	Course	Assessment
	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.
3. Formulate an implementation and sustainability plan designed to engage community members, policymakers, practitioners, funders, and researchers	SB806: Communication Strategies for Public Health	Assignment 3 – Communication Plan: Students prepare six media executions to implement their own communication plan. A pitch letter, press release, and editorial are required, while the other three delivery methods can be chosen by the students. The students are also required to describe each media execution, when the media execution is intended to be implemented, and the purpose the media execution will serve.
	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 the 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.
	GH744: Program Design for Global Health	Data Review: Describe the data collection methods used, types of data collected, and reasons for data collection. Students work within a community setting to develop a plan, and this direct collaboration ensures that community members' input is incorporated in order to ensure engagement and sustainability.

Competency	Course	Assessment
	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 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	MC775: Social Justice and the Health of Populations: Racism and Other Systems of Oppression in American Inequities	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.
		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.
	MC802: Implementing Community Health Initiatives: A Field-Based Course in Leadership and Consultation	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.
		Final Consultation Report and Presentation: Students work in teams to prepare a written consultation report and present it to community partners, including the 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 the challenges and significance to their community partner as well as within the larger context of community health.

Competency	Course	Assessment
		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 students 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.
	SB818: Qualitative Research Methods	Participant Observation Paper: Students select a public setting, event, or situation and carry out a two-hour observation. In their summary report, students include a description of what they saw, as well as personal, holistic interpretations of what they saw including: movements, interactions, sights, sounds, spatial arrangements, and anything else that strikes them as important. Students should include an analysis about observations regarding influence, power, norms, laws, exchange, ritual, and symbols.
	GH774: Implementation and Evaluation of Community Health Assessment in Mexico	Data Analysis: Data analysis outputs, including a narrative description of themes from qualitative data, and tables and figures from quantitative data with textual description of findings. Students collaborate with community members in collecting their data through fieldwork, ensuring that recognition of structured disadvantages as well as assets are reflected in the data.

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, including discussion of strengths and limitations of the study design.
	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 they relate 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	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. Access and analyze 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 and analyze public health data saved in a variety of formats.
	BS730: Intro to R	Project: Students are required to access and analyze 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 conduct 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 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 identify, carry out, and interpret an appropriate statistical analysis.
	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 Health

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 data sets and determine whether the data is normally distributed (and if not, how to use it). They calculate summary statistics and 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.
		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 data sets and determine whether the data is normally distributed (and if not, how to use it). They calculate summary statistics and 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.
	EH705: Toxicology for Public Health	Homework 1: Students read an article about fracking. They must identify three toxic agents in fracking fluid and characterize them, identify the routes and timing of exposure for the general population and workers, and identify potential adverse health outcomes. This assessment requires students to identify and classify multiple toxic agents and articulate those findings.
		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.
		Homework 6: Students analyze biotransformation data in several species and explain how differences in biotransformation relate to the 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.
		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.

Competency	Course	Assessment
2. Interpret measured or modeled concentrations or doses of hazards compared with risk-based and non-risk-based criteria and guidelines	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 data sets and determine whether the data is normally distributed (and if not, how to use it). They calculate summary statistics and compare the data with relevant standards and guidelines and the primary literature to interpret their findings in order to articulate measured or modeled concentrations or doses of hazards compared with risk-based and non-risk-based criteria and guidelines.
	EH705: Toxicology for Public Health	Homeworks (all three): Students are provided with a situation in which environmental data or health outcome data is provided in a scenario that may face a community. The student is asked to query online 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.
		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.
Homework 7: Students calculate the average daily dose of melamine consumed by babies exposed by consumption of adulterated formula from China and compare that to the reference dose for melamine. This assessment requires students to compare exposure to a regulatory risk value.		
3. Evaluate the influence of susceptibility based on a hazard's biological mode of action, and vulnerability on health risks for major	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? The term paper is in the form of a grant proposal, necessitating inclusion of background information related to mode of action and susceptible populations.

Competency	Course	Assessment
environmental determinants of human 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.
	EH866: Risk Assessment Methods	Final Project (students complete their 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 hazard and use that 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 hazard's 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, collects samples, and analyzes the data with the objective of evaluating exposures to arsenic, manganese, and lead. They clean the data sets and determine whether the data is normally distributed (and if not, how to use it). They calculate summary statistics and 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.
		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, and noise from airports. Students are asked to identify defensible intervention and prevention strategies to improve health through reduction in exposures to environmental hazards.

Competency	Course	Assessment
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, students 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 critical assessment requires that students to 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: paired and two-sample t-tests; chi-squared tests; 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, and apply the statistical methods for hypothesis testing and regression modeling using R.
	EP770: Concepts and Methods of Epidemiology	Workshops 1–2, 5–8: Students calculate appropriate epidemiologic measures to draw valid inferences from various data sets. Data Analysis Project: Students analyze publicly available data, and calculate appropriate epidemiologic measures to draw valid inferences using Excel.
	EP722: Data Collection Methods for Epidemiologic Research	Grant Proposal: Students design an epidemiologic study, proactively, to address a specific hypothesis that limits common methodological issues, focusing on appropriate data collection methods.

Competency	Course	Assessment
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.
	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.
	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
	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.
	EP755: Infectious Disease Epidemiology	Workshop 1: Students demonstrate an understanding of principles and methods of ID Epi, including an evaluation of the strengths and limitations 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.
	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.
	EP764: The Epidemiology of HIV/AIDS in the Developed and Developing World	Team Project: Students work in teams to design an epidemiologic study, proactively, to address a specific hypothesis that limits common methodological 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.	

Competency	Course	Assessment
	EP790: Mental Health Epidemiology	Journal Club: Students critically evaluate the strengths and limitations of peer-reviewed epidemiologic papers.
	EP850: Applications of Intermediate 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 a specific hypothesis that limits common methodological issues.
	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.
		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.
MC759: Perinatal and Child Epidemiology	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.	
3. 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	BS723: Introduction to Statistical Computing	CITI Training: Students complete online modules and earn certificates of competency in human subject protections and HIPAA. Currently, CITI training is a requirement for the Integrated Learning Experience. CITI training will be integrated into BS723 in Fall 2018.
	BS730: Introduction to R	CITI Training: Students complete online modules and earn certificates of competency in human subject protections and HIPAA. Currently, CITI training is a requirement for the Integrated Learning Experience. CITI training will be integrated into BS730 in Fall 2018.

Competency	Course	Assessment
4. Synthesize the results of epidemiologic and statistical analyses to craft public health messages in written/oral presentations for both public health professionals and external audiences	BS805: Intermediate Statistical Computing and Applied Regression Analysis	Project: Interpret and report the results of fitting a linear regression model, including estimates and regression diagnostics. Identify signs of multicollinearity and possible confounders.
	BS820: Logistic Regression and Survival Analysis	Homework: Students interpret estimates and hypothesis tests obtained from regression models that have been fitted to survival data.
	BS851: Applied Statistics in Clinical Trials I	Homework: Evaluate a multicenter clinical trial for interaction between treatment and center. Use the regression model, p-values, estimates, tables, and figures as needed to interpret this result.
	BS852: Statistical Methods in Epidemiology	Project: Students verbally describe confounding in results (interpret and communicate results from analyses that control for confounding including an evaluation of interaction).
	BS858: Statistical Genetics I	Homework: Perform the Madsen-Browning test for association between a phenotype and both the rare variant SNPs and nonsynonymous variants in the FLT1 gene. Document whether the association is determined by the rare variants or the nonsynonymous variants.
	EP722: Data Collection Methods for Epidemiologic Research	Grant Proposal: Students design an epidemiologic study, proactively, to address a specific hypothesis that limits common methodological issues, focusing on appropriate data collection methods, including an oral presentation to the class.
	EP730: Epidemiology of Vaccine-Preventable Diseases	Design a Study: Students apply critical evaluation skills to proactively design an epidemiologic study to address a specific hypothesis that limits common methodological issues, including synthesis of a clear public health message.
	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.
	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, 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 issues, including an oral presentation to the class.

Competency	Course	Assessment
	EP755: Infectious Disease Epidemiology	Surveillance Presentation: Students work in teams to describe and evaluate an existing disease surveillance system, including an oral presentation to the class.
	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, including an oral presentation to the class.
	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, 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.
	EP775: Social Epidemiology	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, including an oral presentation to the class.
	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.
		Final Project: Students articulate multiple perspectives on psychiatric disorders, including those of consumers/patients, providers, and families; and must be able to integrate these perspectives into their thinking about the epidemiology of mental health, 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 data sets, including an oral presentation to the class.
	EP857: Design and Conduct of Cohort Studies	Final Project: 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.
	EP858: Design and Conduct of Case-Control Studies	Design a Study: Students apply critical evaluation skills to design an epidemiologic study, proactively, to address a specific hypothesis that limits common methodologic issues, including an oral presentation to the class.

Competency	Course	Assessment
	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.
	MC759: Perinatal and Child Epidemiology	Final Project: Students apply critical evaluation skills to design an epidemiologic study, proactively, to address a specific hypothesis that limits common methodological issues, including synthesis of a clear public health message.
5. Demonstrate the application of epidemiology and biostatistics for informing etiologic research, planning and evaluation of interventions, public health surveillance, or health policy	BS805: Intermediate Statistical Computing and Applied Regression Analysis	Project: Identify the assumptions, limitations, conduct analysis, and report results of common statistical procedures for research in public health. These procedures include multifactorial ANOVA, multivariate regression and ANCOVA, analysis of repeated measures, logistic regression, and survival analysis.
	BS820: Logistic Regression and Survival Analysis	Homework: Diagnose inconsistencies between survival regression models and data using SAS.
	BS851: Applied Statistics in Clinical Trials I	Homework: Students apply statistical analysis to continuous, dichotomous, 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).
	BS858: Statistical Genetics I	Homework: Perform the Madsen-Browning test for association between a phenotype and both the rare variant SNPs and nonsynonymous variants in the FLT1 gene. Explain whether the association is determined by the rare variants or the nonsynonymous variants. Suggest additional models and other information about the variants that would be useful to collect to further understand the association between the phenotype and this gene.
	EP770: Concepts and Methods in Epidemiology	Data Analysis Project: Students analyze publicly available data, calculate appropriate epidemiologic measures to draw valid inferences using Excel, and generate conclusions supported by the data, demonstrating the application of epidemiology for informing etiologic research.

Table D4.1.5. Assessment of Competencies for the MPH with a Certificate in Global Health Program Design, 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.
2. Articulate 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 utilize their understanding of formative, process, and outcome evaluations, including strengths and weaknesses.
3. Differentiate between quantitative and qualitative evaluation methods in relation to their strengths, limitations, and 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. As 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.
	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, which focus on the use of methods in the papers. Students are required to apply their critical understanding of methodologies and to comment on the strengths and critique the weaknesses of their application in the readings.
	GH744: Program Design	Team Project: Student teams partner with international NGOs to design a public health program. Through their discussion with their international partners, students must accurately analyze and diagnose a public health problem and develop qualitative and quantitative evidence-based solutions to address these problems. Students meet this competency through the development of the M&E plan for their program proposal.

Competency	Course	Assessment
	GH774: Community Health Assessment in Mexico	CHA Report: Students travel to Mexico and work in the communities to identify health needs through a community health assessment. They then analyze the collected data and report the results in technical and lay terms to public health professionals and the community. Students reflect on the strengths and limitations of their data collection processes and results in the written CHA report.
	GH775: Field Practicum in Africa	Final Report: Students prepare and disseminate a report to local stakeholders and community members. The summary of findings and data analysis portions of the report satisfy this competency.
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 students develop inputs as part of the logic model, which include costs of the program/project they are evaluating.
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.

Table D4.1.6. Assessment of Competencies for the MPH with a Certificate in Health Communication and Promotion

Competency	Course	Assessment
1. Design a strategic plan for an intervention and 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 communication 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 approaches for evaluating the communication 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, develop, and evaluate appropriate communications materials from a range of venues they learn about throughout the course.
	SB806: Communication Strategies for Public Health	Assignment 3: Students prepare six 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, and blog. Students examine and develop materials for a wide range of communication 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 three participants, and the resulting website prototype design, including a homepage, an "about" page, and two internal pages. Students perform an audience segmentation exercise and secure input from various users/experts to guide the development of their project.
	SB818: Qualitative Research Methods	Final Research Proposal Presentations: Students will present on the process of conducting qualitative research, from the formulation of a research question through the drawing of conclusions and reporting of results. Through the development and delivery of this presentation, students need to discuss their research question and outline their process in such a way that lay audiences can understand.

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 to that particular audience, 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 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	<p>Lobbying Meetings and Fact Sheet: Students meet with legislative aides to learn about the legislative process and with two or three representatives/senators to hear stories of law-making related to sexual and reproductive health. A fact sheet is created in support of a position on an issue or an in-process bill. Students design a communications material tailored to a specific audience, with the intention to inform lawmakers and inspire support, and do so in a concise format.</p> <p>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 establish 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.</p>

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 the 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.
	MC815: Sexual and Reproductive Health Advocacy	Fact Sheet, Op-Ed, and Storify Assignments: Students create a fact sheet in support of a position on an issue, write an op-ed piece directed at a specific audience/news outlet, and establish themselves as a presence on Twitter and catalog conversations via Storify. These assignments require that students practice creating various communications materials that are tailored to varied audiences with a range of backgrounds.
	GH701: Global Health Storytelling	The Final Product: Students develop a compelling narrative about global health for a broad audience. The final product is a story that is clear, concise, easy-to-follow, and represents a balance of characters, experts, and/or stakeholders from a variety of viewpoints.
	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 a 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.
	PM785: Introduction to Mental Health Advocacy	Advocacy Project Final Report: Students develop a mental health/substance use advocacy idea and present their work via a paper and brief oral presentation. The project includes background on the problem, description of the strategy/coalition to be assembled, identification of the target audience/attitude that needs to be changed, identification of key informants, and a project description that includes procedures, a timeline, and an evaluation. Through the development of this final report, students create various communications methods tailored to a particular audience.

Competency	Course	Assessment
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 developing a detailed intervention plan, including a process/timeline for the plan and a logic model, to appropriately assess the feasibility and effectiveness of a proposed communications campaign.
5. Demonstrate professional oral presentation skills to inform and persuade diverse audiences	SB813: Web-Based Health Communication Strategies	Final Proposal/Design Document: During the last class, students will present their final design proposal for a website, which includes an overview of the website's formative research, primary audience, goals, behavioral objectives, and design concepts. As part of this presentation, students demonstrate and discuss their individual web-based public health interventions as well as the results of usability testing that they conduct with various stakeholders/potential users of their proposed site.
	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.
	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.

Competency	Course	Assessment
	MC785: Reproductive Health Advocacy: From Rights to Justice	State House Visit: Students visit the State House to meet with state legislators and staff to discuss their experience with drafting and advocating for legislation, with a focus on sexual and reproductive health. The purpose of these visits is for students to talk in small groups with their own representative or state senator and/or their aide. The students will listen to learn about firsthand stories of law-making, but will also talk with the individuals they meet with about a selected bill that is in process, and present it in a way so that it informs and inspires support from the legislators.
	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 the 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.
	MC815: Sexual and Reproductive Health Advocacy	Testimony and Mock Legislative Hearing: Students conduct two hearings, each on a bill that has recently been enacted or is still pending in a state legislature, and present their testimony, responding to questions from congressional representatives. Facts are presented in the context of a point of view and the intent is to persuade audiences that are comprised of characters with varied perspectives.
	GH701: Global Health Storytelling	The Final Product: Students develop a compelling narrative about global health for a broad audience. The final product requires that students conduct and present the results of interviews with individuals, combined with relevant background information and scientific evidence, which contribute to the story they plan to tell.
	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 a 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 an mHealth product.
	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.

Competency	Course	Assessment
	PM785: Introduction to Mental Health Advocacy	Advocacy Project Draft/Final Report Components: Students develop a mental health/substance use advocacy idea and present their work via a paper and brief oral presentation. The project includes the 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 toward the specific audience they are trying to reach via their advocacy campaign, in turn demonstrating their understanding of the needs of diverse audiences.

Table D4.1.7. 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: Healthcare 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. These assignments address student understanding of numerous issues of health services financing and analyze specific scenarios and problems that are seen in the United States and many 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 universal health coverage (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.
	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, and assess the efficacy, budgeted costs, political feasibility, and managerial feasibility of five alternative programs.

Competency	Course	Assessment
	PM840: Analysis of Current Health Policy Issues	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.
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: 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	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.
4. Determine the factors influencing successful policy implementation	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; and (5) a proposed method for implementing the recommended change in the real world.

Competency	Course	Assessment
	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 (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 for implementation.
	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 (UHC), 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.
	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, and 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.

Competency	Course	Assessment
		Op-ed: 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, conducting policy and legal analysis, 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 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 United States are related both to one another and to historical and contextual influences, and can compare these aspects of the US system to those in other developed nations	PM735: Healthcare Finance: How Policymakers and Managers Can Use Money as a Tool to Improve Health Care	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 United States. These assignments address student understanding of numerous issues of health services financing and analyze specific scenarios and problems that are seen in the United States and many 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 Health Care: Students perform presentations that address current issues in HR in health care and how their roles as managers are influenced by, or will influence the specific healthcare delivery issue. Students find articles and news stories on current healthcare organization, delivery, and financing issues and discuss how they have implications for US and global healthcare services.
	PM755: Healthcare Delivery Systems: Issues and Innovations	Independent Project with New Policy and Implementation Steps: Students examine a specific healthcare delivery issue and understand the problem and key stakeholders, and then perform a presentation with conclusions and recommendations. Students must find and investigate current healthcare delivery system issues and understand the implications of this issue on US and sometimes global healthcare services delivery, organization, and financing.

Competency	Course	Assessment
2. Applies economic and political analysis to understand causes of high costs associated with the delivery of healthcare services in the United States 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 healthcare delivery issue. They present possible recommendations for the issues. This assignment has students 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.
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. During the class discussion, after they complete their individual assignment, students are required to develop strategies to improve the organization's position.

Competency	Course	Assessment
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 translate into specific goals based on the project scope and objectives that were provided by the project sponsor.
6. Critically appraises healthcare 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 healthcare organization that addresses issues of inefficiency in healthcare delivery. The students then present a final presentation, and an associated report, on the issues and their recommendations for improvement. This assignment involves examining a healthcare organization's data, performing analysis on it, and making recommendations for strategic improvements that are presented to the sponsor.
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 healthcare 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 health information technology systems and other applications are used in care delivery, financing, and quality improvement.
Leadership		

Competency	Course	Assessment
<p>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</p>	<p>PM832: Operations Management in Health Care</p>	<p>Group Project: Students work on a "live" project with a healthcare organization that addresses issues of inefficiency in healthcare 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.</p>
	<p>PM835: Lean Management in Health Care</p>	<p>Group QI Project: Students work on a "live" project with a healthcare organization that addresses issues of inefficiency in healthcare 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.</p>
<p>10. Identifies important interests of multiple parties to understand the dynamics of conflicts in interpersonal, organizational, and political contexts, and develops viable solutions to identified problems</p>	<p>PM735: Healthcare Finance: How Policymakers and Managers Can Use Money as a Tool to Improve Health Care</p>	<p>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.</p>
	<p>PM736: Human Resource Management in Public Health</p>	<p>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-playing 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.</p>
<p>11. Practices structured approaches for transition from the current to the future state in implementing changes in healthcare policy and management</p>	<p>PM827: Strategic Management of Healthcare Organizations</p>	<p>Case Analyses: Students critically assess multiple cases on healthcare 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.</p>
<p>Professionalism</p>		

Competency	Course	Assessment
12. Presents in a clear, logical manner in formal and informal situations; communicates clearly in small and large group meetings; and competently uses 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 healthcare organization that addresses issues of inefficiency in healthcare 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 themselves 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 healthcare organization that addresses issues of inefficiency in healthcare 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 themselves in informal group meetings.
13. Writes and communicates in a clear, logical, and grammatical manner in a variety of formats (emails, 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 email, memos, and other ways of summarizing and communicating ideas. Students learn that the final report is a polished product that is written formally, unlike less formal memos or emails.
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 healthcare management (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 D4.1.9. 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 Health Care	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 assigned an international health organization as a client. Past examples of clients include Elizabeth Glazer Pediatric Aids Fund Uganda and TAG Development Associates: Myanmar. 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 client's goals as articulated on the scope of work (SOW).
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 policymakers and how financial information and analyses can impact managerial decision-making.
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 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.
	PM733: Health Program Management	Exam 1: In the exam, students apply skills and concepts learned through their coursework and readings. Students rely upon these skills and concepts to respond to prompts on leadership, management and organizational structures, and functions in healthcare settings.

Competency	Course	Assessment
4. Analyze program outcomes to identify the needed changes and ensure that monitoring systems are in place to enable program evaluation	PM733: Health Program Management	Negotiation Simulation: The negotiation workshop begins with a lecture describing the negotiation process. In the exercise, students break out into groups to simulate a negotiation between a physician hospital organization and a payer. Students gain experience in evaluating how group processes can enhance individual capacity.
	MC820: Managing Public Health Programs and Projects	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 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).
5. Propose solutions to a variety of program challenges related to human resources, information technology, operating procedures, monitoring and evaluation, and quality improvement	GH743: Implementing Health Programs in Developing Countries	Consulting Reports for Each Program Implementation Area: Students are divided into teams and each team is assigned an international health organization as a client. Past examples of clients include Elizabeth Glazer Pediatric Aids Fund Uganda and TAG Development Associates: Myanmar. 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.
	PM832: Operations Management in Health Care	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 by seeing that students make realistic and actionable recommendations to the project sponsor. These recommendations are grounded in the data.

Table D4.1.10. Assessment of Competencies for the MPH with a Certificate in Public Health Practice

Competency	Course	Assessment
1. Critically evaluate public health data in pursuit of continuously improving interventions,	BS723: Introduction to Statistical Computing	Final Project: Students work to answer a public health research question using statistical analysis of public health data using SAS and interpret the results. Statistical tests include paired and two-sample t-tests; chi-squared tests; one-way ANOVA; correlation and simple regression; simple logistic regression; ANCOVA and multiple linear regression; multivariable logistic regression; and nonparametric Wilcoxon Signed Rank and Rank Sum tests.

Competency	Course	Assessment
programs, or policies	BS730: Introduction to R	Final Project: Students work to answer a public health research question applying 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.
	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 data sets and determine whether the data is normally distributed (and if not, how to use them). They calculate summary statistics and 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 data sets), to apply GIS tools to explore solutions or support decisions, and to 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, which 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. Design and evaluate a community needs assessment or community-engaged study and make recommendations integrating multiple sources of evidence and community collaboration	MC802: Implementing Community Health Initiatives	Final Consultation Report and Presentation: Students work in teams to prepare a written consultation report and present it to community partners, including the 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. Analyze 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 policymakers 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 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.
	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.

Competency	Course	Assessment
	PM832: Operations Management in Health Care	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 Health Care	Group QI Project Presentation: Students work on a "live" project with a healthcare organization that addresses issues of inefficiency in healthcare 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 healthcare organization's data, performing analysis on it, and making recommendations for strategic improvements that are presented to the sponsor.
4. Apply analytic methods to evaluate the impact of public health programs	GH744: Program Design	Program Design Project (including proposal and presentation): Students are divided into teams 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 required 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.
	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 an advocacy tool or plan to address 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 students' 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.

Competency	Course	Assessment
		Op-Ed: 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 and 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.
	MC763: Maternal and Child Health Policymaking	Analysis of an MCH Policymaker: Since public policy is shaped not only by institutional forces but also the people in those institutions, it is important to understand what motivates those individuals. Students write up an analysis of an individual responsible for making public policy in maternal and child health. The individual should hold or have held a position in the legislative, executive (including bureaucracy), or judicial branch or work as an MCH advocate.

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 requires students to consider 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 requires the development of 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 the 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.

Competency	Course	Assessment
2. Apply relevant ethical, legal, and human rights principles to difficult and controversial public health decision-making	PH856: Law and Ethics for Public Health Leaders	Final Law and Ethics Paper: Students must produce a final paper that provides an in-depth analysis of one of the topics for which they led a classroom discussion and that builds upon and responds to the opinions, arguments, and debates expressed in the relevant required readings and classroom discussion. The paper should articulate a clear and persuasive policy position on the topic discussed within some of the ethical, legal, and human rights contexts explored during this course.
3. Apply lean management tools and techniques to resolve operational problems and enact sustainable change	PM835: Lean Management in Health Care	A3 Project and Presentation: Students must work with a client organization to address an operations improvement issue they have identified using A3 problem-solving approaches. The project includes two deliverables: 1. A written report that identifies the problem and its scope, includes background on the problem (including a literature review), describes the methodology used to explore the problem, presents an analysis and proposed resolution of the problem (including root causes and proposed countermeasures), and includes a list of references cited. 2. An A3 presentation that explores and summarizes issues covered in the written report.
4. Develop financial and business plans for health programs and services	PH853: Managing and Implementing Public Health Programs	Intervention Plan: Students submit a paper that incorporates community and cultural issues in the development of community-based intervention and 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.
	PH857: Health Economics and Financial Management for Public Health	Budget Assignment: This assignment focuses on the development of a budget to scale up a comprehensive program. For this assignment, students will be given a description of the program and information on where to look for resources.

Competency	Course	Assessment
5. 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	Final Policy/Program Evaluation Plan: Students design an evaluation plan for this major assignment, which must: <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 Health: [ERF D4.3.3](#)
- MPH in Epidemiology and Biostatistics: [ERF D4.3.4](#)
- MPH in Global Health Program Design, Monitoring, and Evaluation: [ERF D4.3.5](#)
- MPH in Health Communication and Promotion: [ERF D4.3.6](#)
- MPH in Health Policy and Law: [ERF D4.3.7](#)
- MPH in Healthcare Management: [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, career goals, and the interdisciplinary needs of today's public health workforce. Courses within each certificate program are intentionally sequenced. Students completing the program in 16 months take their core courses in their first semester, the first-level certificate courses in the second semester, and their second-level certificate courses in the third semester. 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. Students are formally assessed on their ability to synthesize foundational and certificate competencies by their

performance on the Integrative Learning Experience, ensuring they will be able to apply the knowledge and skills gained in the program effectively in a professional setting.

In order to accommodate increased student interest, additional course options have been added to fulfill some certificate requirements. These additional courses make it a challenge to ensure that all competencies are covered, but are necessary to maintain the small class experience in each of the specialization options for a large student body.

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 practice-focused program that is designed to prepare students to become leaders of agencies and organizations who are prepared to meet the challenges in the field that do not readily sort themselves neatly into specific concentration skill sets. This focus on interdisciplinary approaches to public health practice has set the DrPH program apart from doctoral programs at many other institutions and represents one of the program's greatest strengths.

The biggest challenge in addressing the DrPH competencies is assessing the considerable experience many DrPH students enter the program with and balancing that with their needs in coursework. The goal is to respect and build upon their past education and field experience and allow them the flexibility to grow as leaders in public health.

D5. MPH Applied Practice Experiences

1) Briefly describe how the school or program identifies competencies attained in applied practice experiences for each MPH student, including a description of any relevant policies. (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 one 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 assigned work products to ensure demonstration of competencies.

During their 240-hour practicum experience (the minimum number of hours required), students and practicum supervisors rate the student's mastery level with each of their selected competencies on a 1–4 scale: novice (1), capable (2), competent (3), or proficient (4). This is required at both the midpoint and conclusion of the practicum. The student also submits a detailed description in the portal 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. All of these products and self-assessments are evaluated by the assigned practicum faculty reviewer.

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/mph/.

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 (i.e., 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
- [ERF D5.3.10](#). BA/MPH
- [ERF D5.3.11](#). BS/MPH
- [ERF D5.3.12](#). JD/MPH
- [ERF D5.3.13](#). MBA/MPH
- [ERF D5.3.14](#). MD/MPH
- [ERF D5.3.15](#). MS/MPH
- [ERF D5.3.16](#). MSW/MPH

Fewer than five students have completed the practicum requirements for the BA/MPH, BS/MPH, JD/MPH, MD/MPH, and MSW/MPH since the new program requirements were implemented in Fall 2016. All available samples have been included in the electronic resource files.

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—the steps taken to secure a practicum are similar to the steps taken to secure a job, practica serve as solid work experience for future employers, and occasionally students are able to leverage practica into full-time positions. The school encourages students to use the practicum to fill gaps in their skills set in order to be more marketable to employers post-graduation. Because of this “practica to careers” continuum philosophy, the school recently broadened the purview of the office formerly known as Career Services to the [Career and Practicum Office](#).

Over the last three years, several 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 outreach to potential 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 about governmental funding and regulatory changes, industry trends, jobs that are in demand, organizations that are hiring, and what hiring managers are seeking in candidates. This effort has yielded an increased number of new practicum hosts on campus and more than 700 practicum postings (opportunities that are promoted on the school’s job board) annually.
- To prepare graduates to enter the increasingly diverse world of public health practice, there has been significant collaboration between administrators and faculty to inform students about public health career paths in the 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 students 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. The portal was designed based on extensive feedback from students, practicum supervisors, and practicum faculty.

- To stay abreast of the changing public health landscape, the school consistently gathers industry and employment data to inform decision-making and student advising, and to cultivate and expand practicum host sites.

The Career and Practicum Office has identified two key areas for improvement in the next year. First, while dual degree students meet all of the requirements of the practicum, not all dual degree students submit their materials through the practicum portal. Instead, the dual degree directors usher the practicum process and are responsible for grading all submissions. Moving forward, all MPH students, including all dual degree students, will be required to use the portal. The dual degree directors will continue to play a key role in the approval process, and moving all students into the portal will streamline the competency mapping and product collection process.

Second, the Practicum Committee plans to add questions to the Practicum Portal to capture additional feedback from supervisors about students' strengths and areas for development. While supervisor feedback is shared regarding attainment of program competencies, the school would like to solicit additional feedback that aids in the student's professional growth, particularly in regard to soft skills.

D6. DrPH Applied Practice Experience

1) Briefly describe how the school or program identifies competencies attained in applied practice experiences for each DrPH student, including a description of any relevant policies. (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. In their first seminar upon entry into the program, students complete a competencies worksheet, self-evaluating their ability to meet the DrPH competencies as established in the past by ASPPH. Beginning with the 2018 cohort, DrPH students will complete a similar process using the new CEPH competencies. At the time of their selection of a practicum site, the students revisit the competency worksheet and consider which competencies have not yet been achieved through coursework, and are expected to use the practicum to address existing deficiencies.

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 are required to complete PM835 (Lean Management in Health Care) 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. Students complete the multiple products described below, including a product that serves the need of the practicum site. The nature of these products will vary based on the needs of the site and the competencies students need to address. The products students have thus far produced do not yet explicitly address the new competencies, but rather reflect the prior DrPH competencies. This will change as the new competencies become part of the system for selecting practicums. Upon completion of the practicum, students demonstrate 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 principal elements:

1. Implementation of the learning contract with the host organization or institution;
2. Application of the principles of lean management to the organization or institution with which they have worked; and
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 the Director of the DrPH program)	D3-4: Propose strategies for health improvement and elimination of health inequities by organizing

	<p>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 the Director of the 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 the student to the DrPH program manager)	D3-11: Assess one's own strengths and weaknesses in leadership capacities, including cultural proficiency.
Field Supervisor Evaluation (submitted by the field supervisor to the DrPH program manager)	D3-11: Assess one's own strengths and weaknesses in leadership capacities, including cultural proficiency).
Final Practicum Presentation (presented by the student to an audience of peers and graded by the 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 leadership competencies and timeline they developed for their learning contract to guide the discussion. Students should discuss with their field supervisor their progress in meeting their learning objectives 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 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; and
- 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 Leadership Self-Assessment: Students must submit a detailed self-assessment reporting on how their field experience and classroom preparation in PH866 (DrPH Leadership Seminar) have improved their leadership competencies. Reflections on their practicum experience must provide a description of how students met their leadership competency learning objectives through specific deliverables, ongoing projects, and/or responsibilities.

Final Practicum Presentation: Students deliver a presentation to the program director—who evaluates 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 documentation, including syllabi and handbooks, of the official requirements through which students complete the applied practice experience. (electronic resource file)

The DrPH Guidebook details the DrPH practicum requirements and is included as [ERF D6.3.1](#).

4) 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 from at least five students in the last three years for each concentration or generalist degree. If the school or program 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 D6.4.1](#). At this time, the revised DrPH competencies have not been fully implemented; consequently, the ERFs provided do not demonstrate mastery of all five competencies. Beginning in Fall 2018, practicum requirements in the program guidebook and practicum data collection forms will reflect a full implementation of the revised DrPH competencies.

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 had 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 lessons from their PM835 Lean Management coursework to an organizational assessment of their practicum site. The DrPH program director provides 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. The program has relied on the ASPPH DrPH competencies in assessing the practicum and the program in general. The school is in the process of transitioning to the new CEPH competencies, which will become the requirement moving forward.

D7. MPH Integrative Learning 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)

All MPH students are required to complete one Integrative Learning Experience (ILE) for the degree program. ILEs are tailored to each certificate/concentration's competencies as outlined below. Some certificates offer students more than one option to complete their ILE requirement. The ILE options for each certificate are outlined in the tables that follow. When there is more than one option, these options are separated by a shaded bar within the table for that certificate.

Tables D7.1.1 – D7.1.10 indicate how competencies are synthesized through the ILE. Numbered competencies represent foundational competencies; unnumbered competencies represent certificate-specific 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, policymakers, 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	

Integrative learning experience	How competencies are synthesized	
	Competencies	Synthesis
	Design a public health intervention which is supported by public health evidence and responds to priorities identified through a community needs assessment	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.

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
Design, conduct, and report on a data 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 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 Health

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 policymaking process, including the roles of ethics and evidence	Students 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.
	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.	

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

Integrative learning experience	How competencies are synthesized	
	Competencies	Synthesis
Design, conduct, and report on a 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 complete CITI training in "Human Subjects Protection" 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 of publications in	4. Interpret results of data analysis for public health research, policy, or practice	Students apply epidemiologic and biostatistical methods to address a

Integrative learning experience	How competencies are synthesized	
	Competencies	Synthesis
a topic area of interest	Evaluate the strengths and limitations of epidemiologic and statistical reports from public health studies	public health issue and critique a set of published manuscripts.
	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" 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	

Table D7.1.5. MPH Integrative Learning Experience for Global Health Program Design, 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 evaluation. They must identify qualitative and quantitative 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 on each of these indicators.
	Select methods to evaluate public health programs	
	Differentiate between qualitative and quantitative evaluation methods in relation to their strengths, limitations, and appropriate uses, with an emphasis on reliability and validity	
	Design monitoring and evaluation plans for public health programs	
	Discuss multiple dimensions of the policymaking process	
	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 D7.1.6. 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 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 a 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 D7.1.7. MPH Integrative Learning Experience for Healthcare Management

Integrative learning experience	How competencies are synthesized	
	Competencies	Synthesis
Apply evidence-based management practices to develop and deliver a report with recommendations to an organization facing a healthcare delivery problem or question	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 healthcare systems	
	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 problem or question, including relevant evidence, and their recommendation to faculty and client managers. Presentations include both visual materials and a written report.
	19. Communicate audience-appropriate public health content, both in writing and through oral presentation	
	Persuasively and clearly communicate in formal and informal situations, using	

Integrative learning experience	How competencies are synthesized	
	Competencies	Synthesis
	technology to support the presentation of ideas and data	

Table D7.1.8. 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 policymaking process, including the roles of ethics and evidence	Students acquire and synthesize research on a persisting issue in a policy memo that identifies and articulates a specific stance or position on that issue.
	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 D7.1.9. 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 well-being of populations who frequently experience stigma and discrimination. Students present their program analysis to international or national stakeholders in a way that
	18. Select communication strategies for different audiences and sectors	
	Propose solutions to a variety of program challenges related to human resources, information technology,	

Integrative learning experience	How competencies are synthesized	
	Competencies	Synthesis
	operating procedures, monitoring and evaluation, and quality improvement	demonstrates an understanding of the challenges faced by the target population and program planners within a specific social and cultural context.

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

Integrative learning experience	How competencies are synthesized	
	Competencies	Synthesis
Data analysis to address a public health problem	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 on a timely public health issue	12. Discuss multiple dimensions of the policymaking process, including the roles of ethics and evidence	Students synthesize research evidence on a current issue through a policy memo that identifies and articulates a specific stance or position on that issue. 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 and synthesize the knowledge and skills gained throughout the MPH program by completing a culminating project. The ILE 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 directors 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 ILE guide.

In terms of process, students register for PH845: Integrative Learning Experience in their last semester and meet with faculty throughout the semester who guide their progress. Each ILE has a guide that outlines student expectations and assessment guidelines. Students meet with their faculty ILE advisor throughout the semester to ensure that they are meeting the appropriate deadlines and milestones of the project. All students, including those enrolled in dual degree programs, complete one of the ILE options outlined in D7.1, based on their functional certificate selection.

All ILEs are assessed by the faculty director or their designates (called faculty ILE advisors) as pass/fail based on rubrics which are included in each ILE guide. Students who do not pass the ILE on their first attempt are provided feedback and the opportunity to revise and resubmit. If they fail to pass a second time, they are referred to the school's Satisfactory Academic Progress Committee for resolution.

Upon successful completion of the ILE, students complete a survey to provide feedback on their level of competency mastery and overall ILE experience. The evaluation of the ILE is underway and will be used for continued quality improvement by the certificate directors and Education Committee.

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 Health
- **ERF D7.3.4.** ILE Guide for the MPH in Epidemiology and Biostatistics
- **ERF D7.3.5.** ILE Guide for the MPH in Global Health Program Design, Monitoring, and Evaluation
- **ERF D7.3.6.** ILE Guide for the MPH in Health Communication and Promotion
- **ERF D7.3.7.** ILE Guide for the MPH in Health Policy and Law
- **ERF D7.3.8.** ILE Guide for the MPH in Healthcare Management
- **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 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 ILE advisors.

In order to ensure grading consistency, faculty created rubrics for each ILE project. The explicit criteria outlined in each rubric reflect the importance of the required objectives, help faculty to provide meaningful feedback in terms of strengths and weaknesses of the ILE project, and minimize inconsistencies in assessments among ILE faculty advisors.

D8. DrPH Integrative Learning Experience

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 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 proposed 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 field settings. DrPH candidates synthesize their coursework into a rigorous, doctoral-level study of a current public health problem within a particular, field-based context that applies relevant data and generates feasible and practical recommendations for improving public health practice to help resolve 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 write a dissertation demonstrating their ability to 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 so 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 United States 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 must 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 passing the comprehensive exams. Prior to the full development of a student's dissertation proposal, the DrPH Committee 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 DDC's approval process to ensure 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 DDC. 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 are 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 SPH 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 DDC 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 DDC. This requirement, to be conducted in an appropriate public forum, is designed to 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 DDC 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 D6.3.1](#).

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 D6.3.1](#).

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 rather 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 choose 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 schoolwide program.

D9. Public Health Bachelor's Degree General Curriculum

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/experiences 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)
-

This criterion is not applicable.

D10. Public Health Bachelor's Degree Foundational Domains

Required documentation:

- 1) Provide a matrix, in the format of Template D10-1, that indicates the courses/experiences 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

Required documentation:

- 1) Provide a matrix, in the format of Template D11-1, that indicates the experiences 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

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

Required documentation:

- 1) Briefly describe, in the format of Template D13-1, 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

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	160 (48 for the MPH)
BS/MPH	160 (48 for the MPH)
MS/MPH	72 (48 for the MPH)
JD/MPH	125 (48 for the MPH)
MSW/MPH	100 (48 for the MPH)
MBA/MPH	82 (48 for the MPH)
MD/MPH	N/A ³⁷ (48 for the MPH)
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, one credit is equivalent to three hours of student effort per week, where “student effort” takes into account work both in and out of the classroom.

³⁷ Boston University Medical School does not use a semester-based credit system; calculating total credits for the dual degree is not possible. MD/MPH students complete 48 public health credits toward their MPH.

D15. DrPH Program Length

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, one credit is equivalent to three 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

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

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. Typically, the school presents 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; 10 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 exam for Module 1: Foundations of the profession and science of public health
2. Identify the core functions of public health and the 10 Essential Services*	PH700: Foundations of Public Health	Online exam for Module 1: Foundations of the profession and science of public health
3. Explain the role of quantitative and qualitative methods and sciences in describing and assessing a population's health	PH700: Foundations of Public Health	Online exam for Module 1: Foundations of the profession and science of public health
4. List major causes and trends of morbidity and mortality in the United States or other community relevant to the school	PH700: Foundations of Public Health	Online exam for Module 1: Foundations of the profession and science of public health
5. Discuss the science of primary, secondary, and tertiary prevention in population health, including health promotion, screening, etc.	PH700: Foundations of Public Health	Online exam for Module 1: Foundations of the profession and science of public health
6. Explain the critical importance of evidence in advancing public health knowledge	PH700: Foundations of Public Health	Online exam for Module 1: Foundations of the profession and science of public health
7. Explain the effects of environmental factors on a population's health	PH700: Foundations of Public Health	Online exam for Module 3: Factors related to human health
8. Explain the biological and genetic factors that affect a population's health	PH700: Foundations of Public Health	Online exam for Module 2: Biological foundations for public health
9. Explain the behavioral and psychological factors that affect a population's health	PH700: Foundations of Public Health	Online exam for Module 3: Factors related to human health
10. Explain the social, political, and economic determinants of health and how they contribute to population health and health inequities	PH700: Foundations of Public Health	Online exam for Module 3: Factors related to human health
11. Explain how globalization affects global burdens of disease	PH700: Foundations of Public Health	Online exam for Module 3: Factors related to human health
12. Explain an ecological perspective on the connections among human health, animal health, and ecosystem health (e.g., One Health)	PH700: Foundations of Public Health	Online exam for Module 3: Factors related to human 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 master's 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	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 multiweek, 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 multifactorial ANOVA, ANCOVA, analysis of repeated Gaussian measures, and multiple linear regression analysis, and to report complete results using tables and text in paragraph form.
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 culminating 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 culminating 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.

Competency	Course	Assessment
3. Perform intermediate- or higher-level statistical analyses (estimation and inference), including ANOVA, linear and logistic regression analysis, and survival analysis	SPH BS805: Intermediate Statistical Computing and Applied Regression Analysis	Course Project: Integrative multiweek, take-home project that assesses the mastery of preparing data for analysis, including 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 multifactorial 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 culminating 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.
4. Develop competency in statistical programming for both managing and analyzing data	SPH BS805: Intermediate Statistical Computing and Applied Regression Analysis	Course Project: Integrative multiweek, take-home project that assesses the mastery of preparing data for analysis, including 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 multifactorial ANOVA, ANCOVA, analysis of repeated Gaussian measures, and multiple linear regression analysis, and to report complete results using tables and text in paragraph form.

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 two 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 assignment assesses students' 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.

Competency	Course	Assessment
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 risk factors, adjusting for confounders. The homework requires 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 data sets that students need to analyze using Bayesian logistic and log-linear models. The homework will assess the student's competency in using Markov Chain Monte Carlo to generate estimates of the regression coefficients and conduct Bayesian model selection.
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 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	BS728: Public Health Surveillance	Homework 4: This assesses competency in using regression models for time-series data, with longitudinal correlation.

Competency	Course	Assessment
commonly used in biomedical research, including mixed models and analysis of correlated data	BS857: Analysis of Correlated Data	Final Project: A final data analysis group project is due by week 14, where students choose a data set 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 and 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.
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 assignment includes analysis of real data sets from longitudinal cohort studies 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; and whether they can estimate association between a binary outcome and a binary risk factor adjusting for confounding using the 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.

Competency	Course	Assessment
8. Apply basic principles and methods to design, plan, conduct, and interpret biomedical studies in clinical trials	BS851: Applied Statistics in Clinical Trials I	Homeworks 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, and 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 data set 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.
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.

Competency	Course	Assessment
	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 data sets, clean data sets, and apply 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 data sets), to apply geographical information systems (GIS) tools to explore solutions or support decisions, and to summarize and explain their results in a professional format. Students find or collect exposure assessment data, link it to geographical data, and present their analysis.
	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.

Competency	Course	Assessment
	EH875: Case Studies in Environmental Decision-Making	Problem Sets: All five problem sets require use of exposure assessment data. For instance, Problem Set 1 asks students to consider several different scenarios for exposure to lead. The problem sets allow students to use skills in data management and analysis.
2. Use medical and toxicological databases to identify data and information that inform the 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 inform the 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 data sets), to apply 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.
	EH875: Case Studies in Environmental Decision-Making	Problem Set 3: Students consider several epidemiologic study designs and propose an appropriate design for addressing a specific research question about health risks of genetically modified foods. Students must describe the pros and cons of their choice of study design, including discussion of how exposure and outcome data would be collected with their selected design and how bias might occur. This exercise assesses the students' understanding of multiple epidemiologic study designs as well as biases.

Competency	Course	Assessment
	EH872: Environmental Data and Modeling	In-Class Exercises, Problem Sets, and Final Project: Exposure assessment—including use and modeling of exposure data—is a crucial component of environment epidemiology. In one in-class exercise, students use basic epidemiologic concepts (e.g., causal diagrams) to analyze determinants of exposure. In Problem Set 1, students determine which routes of exposure are most important to measure for a compound. In Problem Sets 2 and 3, students analyze the importance of environmental and biological half-lives for exposure. In Problem Set 3, students use NHANES data on exposure and the USA biomonitoring surveillance system.
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 five 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 data sets), to apply GIS tools to explore solutions or support decisions, and to summarize and explain their results in a professional format. Students use multiple analytical GIS approaches to analyze their data and suggest potential interventions.
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).
	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.

Competency	Course	Assessment
	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 data sets), to apply GIS tools to explore solutions or support decisions, and to summarize and explain their results in a professional format, both written and oral. Students communicate their results to multiple parties, including colleagues, professors, and on many occasions, community or policy stakeholders.
	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 double-spaced pages 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.

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 design an epidemiologic study to assess the hypothesis validly and efficiently	EP722: Data Collection Methods for Epidemiologic Research	Final Project: Students write an Approach section of an 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.
	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.

Competency	Course	Assessment
	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 (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 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 data set and are asked to generate a data set ready for analysis by creating new variables, formatting them, and labeling 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 publicly available data set 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 data set using a popular computer-aided tool.
	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 data set using popular analytic tools.

Competency	Course	Assessment
	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, and 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 written, tabular, and oral formats. Thus, students demonstrate skills in analyzing a complex data set 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 data set. They present interim results in Homework assignments, write methods and 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 data set, 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 (Homeworks 2–12). Their final paper is a manuscript with introduction, methods, results, and discussion sections and supporting tables and/or figures. Thus, students gain skills in oral and written communication of epidemiological research.
	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 data set, 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.

Competency	Course	Assessment
5. Critically evaluate research reports and publications	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 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	Three 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 data set, 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.
	EP817: Guided Epidemiology Study	Final Manuscript: Students select a research question that can be analyzed in a data set provided by the instructor. They perform a systematic literature review (Homework 2), develop a hypothesis based on critical review of studies and gaps identified, and perform a secondary data analysis to test the hypothesis. Thus, students demonstrate skills in critically evaluating research reports and publications.

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 arguments and data that demonstrate the utility of such approaches to the country being studied.

Competency	Course	Assessment
	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 services 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 relevant conceptual models to support study topics	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 models or theories 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.
	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 four or five 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 of the proposed study.

Competency	Course	Assessment
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, a description of 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 Three 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 responds 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.
	PH844: Qualitative Methods for Public Health and Health Services Research	Qualitative Research or Evaluation Proposal: The proposal is a culmination of methodologic 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 is critical. Students are expected to produce an organized, executable study, grounded in qualitative best practices.
	PM814: Contemporary Theoretical and 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 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 being implemented in practice. Students use this quality gap to create a research question.

Competency	Course	Assessment
4. Analyze the strengths and weaknesses of a variety of possible study designs that can appropriately address health systems and services research questions	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 study design, 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.
	PH843: Quantitative Methods for Public Health and Health Services Research	Across Four 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 are exposed to analysis of the strengths and weaknesses of a variety of study designs and can focus on a single study design of their own choosing in greater depth.
	PM831: Implementation Science: Translating Research to 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 four or five 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 in detail about their study design, why they selected it, and how it addresses the health systems and services research question they are interested in studying.
		Final Outline of Study: The final outline of the study includes all aspects of what would be the student's implementation study. It is a detailed outline that addresses all study components. One component of this outline, which can be supplied as a draft poster or as an outline, is the study design. In order to complete the outline or the draft of the poster, students will have examined a range of different designs to address their research question, based on what they have learned in the readings or from in-class discussion and activities.

Competency	Course	Assessment
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 students' 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.
6. Apply project and financial management tools to the conduct of research projects, ensuring that they remain on schedule and within resources constraints	PM790: Proseminar: Tools for Project Management, Communication, and Budgeting	<p>Gantt Chart: In this assignment, students are asked to develop a Gantt chart, including outlining the various required tasks for their 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 completed within the timeframe. The Gantt chart also requires students to assign tasks to staff and to consider the 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>
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	PH844: Qualitative Methods for Public Health and Health Services Research	Qualitative Research or Evaluation Proposal: The proposal is a culmination of methodologic 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 is 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.

Competency	Course	Assessment
treatment of research subjects	PH843: Introduction to Qualitative Analysis for Public Health and HSR	Across Three Assessments: Students are required to: (1) demonstrate competency in power analysis (Problem Set 2); (2) submit a draft set of specific aims that applies research methods to a question of interest; 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. Throughout these assessments, students are required to demonstrate understanding of external validity, scientific uncertainty, and research ethics to encourage studies that produce reproducible results in an ethical manner.
	PM822: Advanced Quantitative HSR Methods	Final Paper and Presentation: This competency is addressed through the methods displayed in the paper and presentation that demonstrate an understanding about the nature of study designs and reproducibility of the methods applied and the requirements to conduct the study proposed. Mutual accountability of collaborators is assessed through the student's evaluations of their peers who are involved in the paper and project. Ethical treatment of research subjects is evaluated through the methods proposed in the study design.
	PM828: Advanced Seminar in Qualitative Research Methods for HSR	Semester-Long Project: Students are asked to reflect on recruitment strategies and issues surrounding ethical dilemmas with respect to conducting qualitative interviews. This is included in their mid-year paper as they reflect on their interviews.
	PM831: Implementation Science: Translating Research into Practice	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 focused on stakeholder engagement and multidisciplinary teams, as implementation studies cannot occur without stakeholder engagement and buy-in; students address the key stakeholders in their posters. Stakeholder engagement addresses the mutual accountability with the collaborators' component of the competency.

Competency	Course	Assessment
8. Work collaboratively with interdisciplinary teams to carry out research and to effectively communicate research results	PM790: Proseminar: Tools for Project Management, Communication, and Budgeting	Class Project: Student teams will randomly draw for a target audience for their project presentation. The target audience will be comprised of funders, research participants, academic colleagues, or policymakers. 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 and 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 Quantitative HSR 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 and hypotheses that are proposed. The questions and hypotheses will be addressed through a rigorous data analysis using a secondary database. This will be based on the study design proposed by the students. 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 toward a future paper to be submitted to a peer-reviewed journal.
	PM828: Advanced Seminar in Qualitative Research Methods for HSR	Semester-Long Project: Students engage in this semester-long project beginning with identifying a relevant research question, reviewing the relevant literature, conducting qualitative interviews, and conducting analyses. The final paper is in the format of an introduction, methods, findings, and a discussion section as is relevant for publication.

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 multilevel and lifecourse 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 the understanding of 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.

Competency	Course	Assessment
	HS776: Nutritional Epidemiology	Research Article Critiques: A series of research articles are chosen by the instructor to provide a comprehensive set of current literature investigating relationships between dietary exposures as determinants of public health outcomes. Readings include population-based observational epidemiology as well as interventions at the level of individuals, communities, organizations, populations, policies, and environments. Students critically review the science and its public health relevance through weekly in-class discussions and written critiques.
	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.
	SB800: Obesity in 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 their ability to articulate determinants of the obesity epidemic across multiple levels of influence.
2. Critically analyze and synthesize research findings to inform evidence-based nutrition policies and recommendations for future research	HS551: Human Nutrition Science	Online Assignments and Case Studies: A series of online 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 the understanding of 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.
	HS776: Nutritional Epidemiology	Media Critique Paper: Students choose a diet-disease relationship that is purported in the lay press media (i.e., vitamin D supplementation lowers the risk of developing type 2 diabetes), then find three to five research studies published in the peer-reviewed literature to either support or refute the media claim. Students critique the research methods, weigh the evidence, and synthesize findings across the literature to determine the evidence base behind the dietary recommendations put forth in the media article.

Competency	Course	Assessment
	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 in 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.
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.
	SB822: Program Evaluation	Group Evaluation Proposal: Students work in teams to write an evaluation proposal on a topic and target population of their choosing. Students must demonstrate clear writing skills in: (1) justifying a public health intervention that is supported by evidence and that responds to the needs of a specific vulnerable population; and (2) designing an implementation and outcome evaluation to engage various stakeholders for influencing public health outcomes.

Competency	Course	Assessment
	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 US 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 the slides readable? Were the 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 the allotted time? Was the talk well paced (not too rushed, not too slow)?
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 United States and their implications for human health. By using foodborne illness tracking data in the United States, they identify impacts and limitations in the health protections in the US food safety policies.
5. Apply the 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 the understanding of 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.
	HS776: Nutritional Epidemiology	Research Article Critiques: A series of research articles are chosen by the instructor to provide a comprehensive set of current literature investigating relationships between dietary exposures and public health outcomes. Selected readings showcase a variety of research study designs, research methodologies, and statistical techniques. Students critically review the research through weekly in-class discussions and written critiques,

Competency	Course	Assessment
		with a heavy emphasis on discerning methodological strengths and limitations.
	HS720: A Lifecourse Approach to Community Nutrition	Logic Model Assignment: Students are trained to develop logic models using two methods: (1) ATM three-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 impacts) to promote public health nutrition activities at the community and population levels.
	SB800: Obesity in 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.
	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 two or three 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 are 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 and limitations, and the 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 Modeling 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 Modeling 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 Modeling

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 and 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 develop an independent assessment of the case,

including the environmental health background, supporting data, and the available policy options, and 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, in which students receive 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 is 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 toward 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 Health 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)

The final research project for the academic master's degrees are available as electronic resource files:

- [ERF D17.7.1](#). MA in Biostatistics
- [ERF D17.7.2](#). MS in Applied Biostatistics
- [ERF D17.7.3](#). MS in Environmental Health Data Analytics
- [ERF D17.7.4](#). MS in Epidemiology
- [ERF D17.7.5](#). MS in Health Services and Systems Research

- **ERF D17.7.6.** MS in Public Health Nutrition

Fewer than five students have completed the MS programs in Environmental Health Data Analytics, Epidemiology, Health Services and Systems Research, and Public Health Nutrition since the new programs began in Fall 2017. All available samples have been included in the electronic resource files.

8) Briefly explain how the school ensures that the instruction and assessment in basic public health knowledge are 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 (four hours total).

Boston University courses must be equivalent to at least three 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 evolved, 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. The school is currently reviewing declined admitted student offer surveys to investigate whether there are enrollment barriers that can be addressed and conducting program reviews to determine whether programs should be eliminated.

D18. Academic Public Health Doctoral Degrees

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 gray.

Table D18.1.1. Coursework for the PhD in Biostatistics

Course number	Course title
<i>Required courses</i>	
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

Course number	Course title
<i>Required courses</i>	
EH705	Toxicology for Public Health
EH710	Physiologic Principles for Public Health
EH730	Methods in Environmental Health Science
EH805	Environmental Health Science, Policy, and Law
BS723 or BS730	Introduction to Statistical Computing Introduction to R
EP714	Introduction to Epidemiology
<i>Elective coursework in one of the following emphasis areas</i>	
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 and Applied Regression Analysis
Toxicology	
EH713	Molecular Biology
EH840	Advanced and Emerging Topics in Toxicology
EH866	Risk Assessment Methods
BS830 or BS805	Design and Analysis of Microarray Sequencing and Next Generation Sequencing Intermediate Statistical Computing and Applied Regression Analysis

Table D18.1.3. Coursework for the PhD in Epidemiology

Course number	Course title
<i>Required coursework</i>	
EP854	Advanced Epidemiology
EP855	Advanced Epidemiology Seminar: Issues in Study Design
EP860	Novel Analytical Methods for Epidemiology
<i>Students complete at least 12 additional credits from the following</i>	
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 and Public Health
BS857	Analysis of Correlated Data

Table D18.1.4. Coursework for the PhD in Health Services Research

Course number	Course title
<i>Required coursework</i>	
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 Healthcare Quality
PM842	Health Economics for Health Services Research
PM844	Health Policy and Policymaking for Public Health Researchers
PM821 or PM828	Advanced Quantitative Health Services Research Methods Advanced Qualitative Methods
<i>Students are encouraged to complete elective coursework in one of the following emphasis areas</i>	
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; 10 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	PH700: Foundations of Public Health	Online exam for Module 1: Foundations of the profession and science of public health
2. Identify the core functions of public health and the 10 essential services*	PH700: Foundations of Public Health	Online exam for Module 1: Foundations of the profession and science of public health
3. Explain the role of quantitative and qualitative methods and sciences in describing and assessing a population's health	PH700: Foundations of Public Health	Online exam for Module 1: Foundations of the profession and science of public health

4. List major causes and trends of morbidity and mortality in the United States or other community relevant to the school	PH700: Foundations of Public Health	Online exam for Module 1: Foundations of the profession and science of public health
5. Discuss the science of primary, secondary, and tertiary prevention in population health, including health promotion, screening, etc.	PH700: Foundations of Public Health	Online exam for Module 1: Foundations of the profession and science of public health
6. Explain the critical importance of evidence in advancing public health knowledge	PH700: Foundations of Public Health	Online exam for Module 1: Foundations of the profession and science of public health
7. Explain the effects of environmental factors on a population's health	PH700: Foundations of Public Health	Online exam for Module 3: Factors related to human health
8. Explain the biological and genetic factors that affect a population's health	PH700: Foundations of Public Health	Online exam for Module 2: Biological foundations for public health
9. Explain the behavioral and psychological factors that affect a population's health	PH700: Foundations of Public Health	Online exam for Module 3: Factors related to human health
10. Explain the social, political, and economic determinants of health and how they contribute to population health and health inequities	PH700: Foundations of Public Health	Online exam for Module 3: Factors related to human health
11. Explain how globalization affects global burdens of disease	PH700: Foundations of Public Health	Online exam for Module 3: Factors related to human health
12. Explain an ecological perspective on the connections among human health, animal health, and ecosystem health (e.g., One Health)	PH700: Foundations of Public Health	Online exam for Module 3: Factors related to human 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. Apply theory and principles of probability, statistical inference, and biostatistical methods, and their	CAS MA575: Linear Models	Final Exam: Culminating 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.

Competency	Course	Assessment
relevance to epidemiologic studies and other biomedical research areas	CAS/MET MA581: Probability	Final Exam: In-class culminating 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, and loss functions.
	CAS/MET MA582: Mathematical Statistics	Final Exam: In-class culminating 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 multiweek, take-home project that assesses the mastery of preparing data for analysis, including 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 multifactorial 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 culminating 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
	GRS MA781: Estimation Theory	Final Exam: In-class culminating exam assessing the mastery of parametric point estimation, optimality, Bayes, and minimax estimation, principles of data reduction, decision theory, nonparametric and interval estimation.
	GRS MA782: Hypothesis Testing	Final Exam: In-class, culminating 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	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: Culminating 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 multiweek, take-home project that assesses the mastery of preparing data for analysis, including 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 multifactorial 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 culminating 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.

Competency	Course	Assessment
	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.
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: Culminating 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 multiweek, take-home project that assesses the mastery of preparing data for analysis, including 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 multifactorial 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 culminating 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.

Competency	Course	Assessment
	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 culminating exam assessing the mastery of the analysis of correlated observations in a regression framework, including repeated measures 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 three toxic agents in fracking fluid and characterize them, identify the routes and timing of exposure for the general population and workers, and identify potential adverse health outcomes. This assessment requires students to identify and classify multiple toxic agents and articulate those findings.
2. Examine 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 pneumoconiosis 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.

Competency	Course	Assessment
	EH730: Methods in Environmental Health Science	Problem Set 1: Students describe characteristics, sources, and routes of exposure, toxicokinetics, and mode of action for two different chemicals that are part of a provided data set. Students must also construct a conceptual model that depicts how the chemicals are emitted, transported from environment to human receptor, and cause human health effects.
3. 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.
	EH730: Methods in Environmental Health Science	Homeworks (all): Students are asked to use the exposure-disease model in a variety of situations. Examples include lead in tap water, PFAS in cooking pots, bacteria in foods, and noise from airports. Students are asked to identify appropriate intervention strategies for specific environmental health problems, taking into consideration the factors that affect susceptibility to the adverse health effects of these exposures.
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)	EH730: Methods in Environmental Health Science	Problem Set 1: Students are asked to read and review a technical journal article in environmental health. They respond to questions about the study population, study design and data collection methods, interpretation of the findings, and limitations of the study.
5. 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.
	EH805: Environmental Health Science, Policy, and Law	Chemicals Policy Debate (written component): Students research and present positions regarding the extent to which the Lautenberg Amendment to the Toxic Substances Control Act fills data gaps and critical questions in environmental health.

Competency	Course	Assessment
6. Design and implement data collection strategies and rigorous evaluations to test hypotheses using novel or current techniques	EH730: Methods in Environmental Health Science	Environmental Data Collection and Analysis Project: This independent project requires 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 data sets, calculate summary statistics, and conduct rigorous evaluations to test hypotheses using novel or current techniques.
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 the 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.		
8. Determine the appropriate intervention strategies for specific environmental health problems	EH730: Methods in Environmental Health Science	Homeworks (all): Students apply 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, and noise from airports. Students are asked to identify appropriate intervention strategies for specific environmental health problems.

Competency	Course	Assessment
		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, collects samples, and analyzes the data with the objective of evaluating exposures to arsenic, manganese, and lead. They clean the data sets and determine whether the data is normally distributed (and if not, how to use it). They calculate summary statistics, and 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.
9. Prepare scientific manuscripts for publication in peer-reviewed journals in the field of environmental health	EH730: Methods in Environmental Health Science	Environmental Health Data Collection and Analysis Project and Technical Report: Students gain experience designing and carrying out a research project, including interpretation of results and writing a project summary. The technical report mimics a scientific paper.
10. Communicate scientific results at national and/or international conferences in the field of environmental health	Doctoral Dissertation	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, and 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 epidemiologic 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 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.

Competency	Course	Assessment
		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.
3. Analyze and interpret epidemiologic studies using appropriate methods	EP854: Advanced Epidemiology	Problem Sets: Understanding the application of the competency is covered in Homework 1 when students analyze data using counterfactual types; in Homework 2 when they analyze data on effect modification; and in 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 data set 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. Articulate 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, 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 the aspects of epidemiologic theory that are 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.

Competency	Course	Assessment
5. Identify 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.
6. Demonstrate proficiency in data collection, data analysis, and written summaries of statistical analyses	EP855: Advanced Epidemiology Seminar: Issues in Study Design	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 an understanding of sources of bias as well as approaches to evaluating and controlling bias.
	EP860: Novel Analytical Methods for Epidemiology	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.
	EP860: Novel Analytical Methods for Epidemiology	Final Project: Students implement one of the methods to control sources of bias using a data set that they have access to in order to answer a causal question. Through this assessment, students must demonstrate not only their understanding of biases in epidemiologic research, but also their application of the methods to evaluate and control bias.
	EP860: Novel Analytical Methods for Epidemiology	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. 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.

Competency	Course	Assessment
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.
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	Doctoral 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. Analyze key factors in the context of health and healthcare systems, institutions, actors, and environments that have the potential to influence provision and use of health services. These may	PM837: Evaluating Healthcare Quality	Homework 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 healthcare system, institution, actors, and/or environment.

Competency	Course	Assessment
<p>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</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 healthcare 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>
<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</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 a 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 three to five in-depth questions for the class to discuss; and (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>anthropology, demography, economics, epidemiology, management, organizational science, political science, psychology and/or economics</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>

Competency	Course	Assessment
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	PM844: Health Policy and Policymaking for Public Health Researchers	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; they need to take into account the political context.
4. Analyze the strengths and weaknesses of a variety of possible study designs that can appropriately address specific health services research questions. Methods include interventional, comparative, and observational approaches, as well as qualitative and quantitative approaches, and are derived from foundational health services fields and different types and sources of data	PH844: Introduction to Qualitative Research Methods	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.
	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 ensures that the student's chosen study design appropriately addresses the specific health services research question.

Competency	Course	Assessment
<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 the 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 healthcare 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. Apply 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>
<p>7. Apply a range of appropriate analytical techniques to data in order to explore various types of HSR questions. Utilize</p>	<p>PM837: Evaluating Health Care Quality</p>	<p>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.</p>

Competency	Course	Assessment
appropriate combination of analytic techniques to deepen data analysis and interpretation.	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 the 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: 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 combination 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.
10. Effectively communicate the process, findings, and implications of health services research via multiple modes, including via peer-reviewed	PM844: Health Policy and Policymaking for Public Health Researchers	Blog Post: Students write a blog post linking evidence to a current policy issue in the style of <i>The Incidental Economist</i> or the <i>New England Journal of Medicine</i> 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.

Competency	Course	Assessment
publications, oral presentations, and technology. Be able to communicate findings to multiple stakeholders and audiences, including funders, research participants, colleagues, policymakers, and managers		Legislative Testimony: The testimony is a mock legislative hearing in which students have a few minutes to convince policymakers to take action. Using the topic they are focused on for their final project, students 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.
		Final Paper: The final project is the culminating assignment of the semester in which students 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.

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 are 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 45 hours of engagement, which is equivalent to the instruction and assessment time typically associated with a three-credit course.

Quantitative and qualitative research methods 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 Modeling 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 Modeling
- EP714: Introduction to Epidemiology
- EP854: Advanced Epidemiology

Epidemiology

- BS821: Categorical Data Analysis
- BS855: Bayesian Modeling for Biomedical Research and 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 Healthcare Quality
- PM842: Health Economics for Health Services Research
- PM821: Advanced Quantitative Health Services Research Methods
- PM828: Advanced Qualitative Method

As a supplement to the required coursework, each department organizes workshops and seminars each semester that focus on a variety of research methods topics. Recent seminars have included estimation and interpretation: introduction to parametric and semi-parametric estimators for causal inference, and advances in methods in research design and data analysis. Doctoral students are strongly encouraged to attend.

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, who evaluate and approve the final dissertation.

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 takes the form of three papers or one larger body of work that meets 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 Dissertation Committee and the outside reader confer and agree on the 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 demonstration 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, a 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*. Doctoral candidates present an oral defense of their dissertation before a committee, who evaluate and approve the final dissertation. Following the defense, the committee confers and agrees on final approval for granting of the doctoral degree.

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 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 to the committee. After a successful proposal defense, the student submits the Dissertation Proposal Completion Record form and carries out the approved 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 comprise 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 the Dissertation Committee members, and the committee must grant approval before the student defends. Doctoral candidates present an oral defense of their dissertation before the committee, who evaluates and approves the final dissertation. Following the defense, the committee confers and agrees on final approval for granting of the doctoral degree.

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 are 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 approximately 15 hours of study. Boston University courses offered during a typical semester must be equivalent to at least three 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 small incoming student numbers have been an ongoing challenge for each doctoral program. Doctoral programming is a significant investment by the school and limits the number of students admitted each year. The small class size lessens the positive effects of a larger cohort and reduces 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

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 are 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

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

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 in 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	Johns Hopkins University University of California, 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, 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)
Bor	Jacob	Assistant Professor of Global Health	SM ScD	Harvard University Harvard University	Economics Global Health Management	Monitoring and Evaluation (MPH) Program Management (MPH)
Brennan	Alana	Assistant Professor 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)

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)
Cabral	Howard	Professor of Biostatistics	MPH PhD	Boston University Boston University	Epidemiology Biostatistics	Design and Conduct of Public Health Research (MPH) Epidemiology and Biostatistics (MPH)
Cheng	Debbie	Professor of Biostatistics	ScD	Harvard University	Biostatistics	Biostatistics (MA, MS, PhD)
Claus Henn	Birgit	Assistant Professor of Environmental Health	MPH ScD	University of California, Berkeley Harvard University	Environmental Health Epidemiology	Environmental Health (MS, PhD) Environmental Health (MPH)
Cole Brahim	Megan	Assistant Professor of Health Law, Policy, and Management	MPH PhD	Yale University Brown University	Health Administration Health Services Research	Health Services Research (MS, PhD) 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 DSc	Boston University Boston University	Epidemiology Epidemiology	Public Health Practice (Executive MPH) Epidemiology (MS, PhD)
Declercq	Eugene	Professor of Community Health Sciences	MBA MS PhD	University of Massachusetts, 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)
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 Polytechnic Institute Cornell University	Dairy Science Animal Science/Biometry & Genetics	Epidemiology and Biostatistics (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)
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, and Management	MEd PhD	University of Massachusetts, 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 and Behavioral Sciences Maternal and Child Health	Health Communication and Promotion (MPH) Leadership, Management, and Policy (DrPH)
Fabian	Patricia	Research Assistant Professor of Environmental Health	MS ScD	University of Colorado Boulder Harvard University	Environmental Science Environmental Health	Environmental Health (MS, PhD) Environmental Health (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)
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)

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)
Godley	Sophie	Clinical Assistant Professor of Community Health Sciences	MPH DrPH	University of Washington Boston University	Social and Behavioral Sciences Public Health	Community Assessment, Program Design, Implementation, and Evaluation (MPH) Public Health Practice (Executive MPH)
Gradus	Jaimie	Associate Professor of Epidemiology	DSc MPH	Boston University Boston University	Epidemiology Epidemiology	Epidemiology (MS, PhD)
Greece	Jacey	Clinical Assistant Professor of Community Health Sciences	MPH DSc	Boston University Boston University	Social and Behavioral Sciences Epidemiology	Public Health Practice (Executive MPH) Public Health Nutrition (MS)
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)
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	Global Health Program Design, 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) Public Health Nutrition (MS)
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 Health (MPH) Environmental Health (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)
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)
Janulewicz	Patricia	Assistant Professor of Environmental Health	MPH DSc	Boston University Boston University	Environmental Health Environmental Health	Environmental Health (MS, PhD) Environmental Health (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)
Jernigan	David	Professor of Health Law, Policy, and Management	PhD MA	University of California, Berkeley University of California, Berkeley	Sociology Sociology	Healthcare Management (MPH)
Jones	David	Assistant Professor of Health Law, Policy, and Management	MSPH MA PhD	University of North Carolina University of Michigan–Ann Arbor University of Michigan–Ann Arbor	Public Health Political Science Health Services, Organizations, and Policy	Health Policy and Law (MPH) Health Services Research (MS, PhD)
Kaufman	David	Professor of Epidemiology	ScD MS	Harvard University Harvard University	Epidemiology 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)
Kazis	Lewis	Professor of Health Law, Policy, and 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	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	Economics Economics	Leadership, Management, and Policy (DrPH)
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 Health (MPH)
Levy	Jonathan	Professor of Environmental Health	ScD	Harvard University	Environmental Health	Environmental Health (MS, PhD) Environmental Health (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)
Lipson	Sarah	Assistant Professor of Health Law, Policy, and Management	PhD EdM	University of Michigan–Ann Arbor Harvard University	Sociology/Public Policy Education	Health Policy and Law (MPH) Healthcare Management (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, Los Angeles University of California, 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 and 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	Global Health Program Design, Monitoring, and Evaluation (MPH) Program Management (MPH)
Louis	Christopher	Assistant Professor of Health Law, Policy, and Management	MHA PhD	University of Florida Pennsylvania State University	Health Policy Management Health Policy Management	Healthcare Management (MPH)
Lunetta	Kathryn	Professor of Biostatistics	MS PhD	University of Michigan–Ann Arbor University of Michigan–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	Global Health Program Design, Monitoring, and Evaluation (MPH) 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)
MacVarish	Kathleen	Associate Professor of the Practice of Environmental Health	MS	University of Massachusetts	Environmental Studies	Environmental Health (MS, PhD) Environmental Health (MPH)
Mariner	Wendy	Edward R. Utley Professor of Health Law, Bioethics, and 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, Los Angeles University of California, Los Angeles	Population/Family Health Science International Health	Community Assessment, Program Design, Implementation, and Evaluation (MPH) Health Communication and Promotion (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, Los Angeles	Public Health Anthropology	Leadership, Management, and Policy (DrPH) Program Management (MPH)
Mitchell	Allen	Professor of Epidemiology	MD	Tufts University	Medicine	Epidemiology (MS, PhD)
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, and Management	MPH MD	Shanghai Medical University Shanghai Medical University	Biostatistics 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)
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)
Palmer	Julie	Professor of Epidemiology	ScD MPH	Harvard University Boston University	Epidemiology Epidemiology	Epidemiology and Biostatistics (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, and 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, and Management	MSc ScD	Harvard University Harvard University	Global Health and Population Global Health and Population	Health Services Research (MS, PhD)
Rider	Jennifer	Assistant Professor of Epidemiology	MPH ScD	University of Massachusetts, Amherst Harvard University	Public Health Epidemiology	Public Health Practice (Executive MPH)
Rockers	Peter	Assistant Professor of Global Health	MPH DSc	University of Michigan–Ann Arbor Harvard University	Epidemiology Global Health Management	Global Health Program Design, Monitoring, and Evaluation (MPH) 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)
Rosen	Sydney	Research Professor of Global Health	MPA	Harvard University	Economics	Program Management (MPH)
Rosenberg	Lynn	Professor of Epidemiology	ScD MS MS	Harvard University Harvard University Boston University	Epidemiology Biostatistics Chemistry	Epidemiology and Biostatistics (MPH)
Rosenbloom	David	Professor of Health Law, Policy, and Management	PhD	Massachusetts Institute of Technology	Political Science	Healthcare Management (MPH)
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 and Child Health Social and Behavioral Sciences Social and Behavioral Sciences	Public Health Practice (Executive 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, and 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)
Scammell	Madeleine	Associate Professor of Environmental Health	DSc	Boston University	Environmental Health	Public Health Nutrition (MS) Environmental Health (MS, PhD)
Schlezingler	Jennifer	Associate Professor of Environmental Health	PhD	Massachusetts Institute of Technology	Oceanography	Environmental Health (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)
Scott	Nancy	Assistant Professor of Global Health	MPH DrPH	Boston University Boston University	International Health International Health	Global Health Program Design, 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)
Sheldrick	R. Christopher	Research Associate Professor of Health Law, Policy, and 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, Berkeley	Medicine Epidemiology	Health Communication and Promotion (MPH)
Slavin	Mary	Research Assistant Professor of Health Law, Policy, and Management	PhD MS	Clark University Boston University	Experimental Psychology Physical Therapy	Health Services Research (MS, PhD)
Stein	Michael	Professor of Health Law, Policy, and Management	MD	Columbia University	Medicine	Health Services Research (MS, PhD)
Stokes	Andrew	Assistant Professor of Global Health	MA PhD	University of Pennsylvania University of Pennsylvania	Population Sciences Sociology	Global Health Program Design, Monitoring, and Evaluation (MPH) Program Management (MPH)
Sullivan	Kimberly	Research Assistant Professor of Environmental Health	PhD	Boston University	Neuroscience/Neurology	Environmental Health (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)

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)
Trinquart	Ludovic	Assistant Professor of Biostatistics	MPH PhD	University of Paris Université 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 Health (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) Global Health Program Design, Monitoring, and Evaluation (MPH)
Wang	Catharine	Associate Professor of Community Health Sciences	MSc PhD	University of Waterloo University of Michigan–Ann Arbor	Social and Behavioral Sciences Social and Behavioral Sciences	Community Assessment, Program Design, Implementation, and Evaluation (MPH)
Wang	Monica	Assistant Professor of Community Health Sciences	MS ScD	Harvard University Harvard University	Social and Behavioral Sciences Social and Behavioral Sciences	Public Health Nutrition (MS) Health Communication and Promotion (MPH)
Webster	Thomas	Professor of Environmental Health	DSc	Boston University	Environmental Health	Environmental Health (MPH) Environmental Health (MS, PhD)
Werler	Martha	Professor of Epidemiology	MPH DSc	University of Michigan–Ann Arbor Boston University	Epidemiology 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)
Weuve	Jennifer	Associate Professor of Epidemiology	MPH ScD	University of Minnesota Harvard University	Epidemiology Epidemiology	Epidemiology (MS, PhD) Epidemiology and Biostatistics (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) Global Health Program Design, 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 and 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)	Percent Time Allocated ³⁸
Akram	Susan	Clinical Associate Professor of Health Law, Policy, and Management	JD	Georgetown University	Law	Health Policy and Law (MPH)	0%
Al-farsi	Yahya	Adjunct Assistant Professor of Epidemiology	MD MPH DSc	Sultan Qaboos University Boston University Boston University	Medicine Epidemiology Epidemiology	Epidemiology (MS, PhD)	0%
Arnold	Marilyn	Adjunct Lecturer of Community Health Sciences	MPH MS	Boston University Harvard University	Public Health Social and Behavioral Sciences	Public Health Practice (Executive MPH)	0%
Au	Rhoda	Professor of Epidemiology	PhD MBA	University of California, Riverside Boston University	Psychology Policy Analysis and Management	Epidemiology and Biostatistics (MPH)	0%
Bachman	Sara	Research Professor of Health Law, Policy, and Management	MS PhD	University of Massachusetts, Amherst Brandeis University	Epidemiology Social Welfare Policy	Health Services Research (MS, PhD)	0%
Balsam	Alan	Adjunct Associate Professor of Community Health Sciences	MS MPH PhD	Framingham State University Boston University Tufts University	Nutrition/Food Science Public Health Nutrition/Food Science	Health Communication and Promotion (MPH)	0%

³⁸ As indicated in C2.2, faculty with secondary and adjunct appointments are not compensated using percent effort calculations, but rather are paid a flat rate for teaching and other engagement. A 0% effort does not indicate a lack of engagement on the faculty member's part or a lack of compensation from the school.

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)	Percent Time Allocated ³⁸
Battaglia	Tracy	Associate Professor of Epidemiology	MD MPH	Boston University Boston University	Medicine Public Health	Public Health Practice (MPH)	0%
Benjamin	Emelia	Professor of Epidemiology	MD SM/ScM	Case Western Reserve University Harvard University	Medicine Epidemiology	Epidemiology (MS, PhD)	0%
Benson	Eugene	Adjunct Clinical Assistant Professor of Environmental Health	JD	Georgetown University	Law	Public Health Nutrition (MS)	0%
Berlowitz	Dan	Professor of Health Law, Policy, and Management	MD MPH	Albert Einstein College of Medicine Boston University	Medicine Epidemiology	Healthcare Management (MPH)	0%
Bernstein	Edward	Professor of Community Health Sciences	MD	Stanford University	Medicine	Leadership, Management, and Policy (DrPH)	0%
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)	50%
Bhutta	Zulfiqar	Adjunct Professor of Global Health	MBBS PhD	Khyber Medical College Karolinska Institute	N/A	Global Health Program Design, Monitoring, and Evaluation (MPH)	0%
Biemba	Godfrey	Adjunct Research Assistant Professor of Global Health	MBChB MSc	University of Zambia London School of Hygiene & Tropical Medicine	Medicine & Surgery	Global Health Program Design, Monitoring, and Evaluation (MPH)	0%
Boden	Leslie	Professor of Environmental Health	PhD	Massachusetts Institute of Technology	Economics	Environmental Health (MS, PhD)	30%
Boehmer	Ulrike	Associate Professor of Community Health Sciences	MA PhD	Boston College Boston College	Sociology Sociology	Community Assessment, Program Design, Implementation, and Evaluation (MPH)	50%

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)	Percent Time Allocated ³⁸
Bokhour	Barbara	Associate Professor of Health Law, Policy, and Management	PhD MA	Clark University Clark University	Medical Discourse Studies Psychology	Health Services Research (MS, PhD)	0%
Bonawitz	Rachael	Adjunct Assistant Professor of Global Health	MD	University of Pennsylvania	Medicine	Program Management (MPH)	0%
Borzecki	Ann Marie	Research Associate Professor of Health Law, Policy, and Management	MD MPH	University of Ottawa Boston University	Medicine Epidemiology	Health Services Research (MS, PhD)	0%
Bosco	Jaclyn	Adjunct Assistant Professor of Epidemiology	MPH PhD	Boston University Boston University	Epidemiology Epidemiology	Epidemiology (MS, PhD)	10%
Bragar	Joan	Adjunct Clinical Associate Professor of Community Health Sciences	MEd EdD	Harvard University Harvard University	Education Education	Leadership, Management, and Policy (DrPH)	0%
Brogly	Susan	Adjunct Assistant Professor of Epidemiology	MSc PhD	McGill University McGill University	Epidemiology Epidemiology	Epidemiology (MS, PhD)	0%
Buring	Julie	Adjunct Professor of Epidemiology	MS ScD	University of Washington Harvard University	Biostatistics Epidemiology	Epidemiology (MS, PhD)	0%
Cahill	Sean	Adjunct Associate Professor of the Practice of Health Law, Policy, and Management	MA PhD	University of Michigan–Ann Arbor University of Michigan–Ann Arbor	Political Science Political Science	Health Policy and Law (MPH)	0%
Carey	Kathleen	Professor of Health Law, Policy, and Management	MAT PhD	Harvard University Boston University	Education Economics	Health Services Research (MS, PhD) Health Policy and Law (MPH)	75%

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)	Percent Time Allocated ³⁸
Chang	Mark	Adjunct Professor of Biostatistics	PhD MS	University of Massachusetts, Amherst University of Massachusetts, Amherst	Civil Engineering Biostatistics	Biostatistics (MA, MS, PhD)	0%
Charns	Martin	Professor of Health Law, Policy, and Management	MBA DBA	Harvard University Harvard University	Business Administration Business Administration	Healthcare Management (MPH)	19%
Chibnik	Lori	Adjunct Assistant Professor of Biostatistics	MPH PhD	Boston University Boston University	Epidemiology Biostatistics	Epidemiology and Biostatistics (MPH)	0%
Clark	Jack	Professor of Health Law, Policy, and Management	PhD	University of Colorado Boulder	Sociology	Health Services Research (MS, PhD)	51%
Cocoros	Noelle	Adjunct Assistant Professor of Epidemiology	MPH DSc	Boston University Boston University	Epidemiology Epidemiology	Epidemiology (MS, PhD)	0%
Cohen	Alan	Professor of Health Law, Policy, and Management	MS ScD	Harvard University Harvard University	Health Policy Management Health Administration	Health Services Research (MS, PhD)	0%
Collins	David	Adjunct Associate Professor of Global Health	MA	University of East Anglia	Rural Development	Program Management (MPH)	0%
Coogan	Patricia	Research Professor of Epidemiology	DSc MPH	Boston University Boston University	Epidemiology Environmental Health	Epidemiology (MS, PhD)	20%
Corwin	Michael	Associate Professor of Epidemiology	MD	Wayne State University	Medicine	Epidemiology (MS, PhD)	0%
Cotton	Deborah	Professor of Epidemiology	MD MPH	Boston University Johns Hopkins University	Medicine Public Health	Epidemiology and Biostatistics (MPH)	0%

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)	Percent Time Allocated ³⁸
Crosby	Sondra	Associate Professor of Health Law, Policy, and Management	PharmD MD	University of Washington University of Washington	Pharmacy Medicine	Health Services Research (MS, PhD)	0%
Cupples	L Adrienne	Professor of Biostatistics	MA PhD	Boston University Boston University	Statistics Statistics	Biostatistics (MA, MS, PhD)	15%
D'Agostino	Ralph	Professor of Biostatistics	MA PhD	Boston University Harvard University	Mathematics Mathematical Statistics	Biostatistics (MA, MS, PhD)	0%
Deane	Sally	Adjunct Clinical Assistant Professor of Health Law, Policy, and Management	MEd MPH	Boston University Boston University	Education Health Administration/ Education	Healthcare Management (MPH)	0%
Densberger	Joan	Adjunct Associate Professor of Health Law, Policy, and Management	MPH JD	Boston University Boston College	Public Health Law	Health Policy and Law (MPH)	0%
Dodson	Robin	Adjunct Assistant Professor of Environmental Health	MS ScD	Harvard University Harvard University	Environmental Science Environmental Health	Environmental Health (MPH)	0%
Dorfman	David	Associate Professor of Community Health Sciences	MD	New York University School of Medicine	Medicine	Community Assessment, Program Design, Implementation, and Evaluation (MPH)	0%
Duckworth	Ken	Adjunct Clinical Assistant Professor of Health Law, Policy, and Management	MD	Temple University School of Medicine	Medicine	Healthcare Management (MPH)	0%
Dukes	Kimberly	Adjunct Assistant Professor of Biostatistics	MA PhD	Boston University Boston University	Mathematics Mathematics	Biostatistics (MA, MS, PhD)	0%

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)	Percent Time Allocated ³⁸
Elwy	Rani	Adjunct Associate Professor of Health Law, Policy, and Management	MS PhD	London School of Economics and Political Science King's College	Psychology Psychology	Program Management (MPH)	0%
England	Mary Jane	Clinical Professor of Health Law, Policy, and Management	MD	Boston University	Medicine	Healthcare Management (MPH)	0%
Farrer	Lindsay	Professor of Biostatistics	PhD	Indiana University School of Medicine	Genetics and Genomics	Biostatistics (MA, MS, PhD)	0%
Feeley	Frank	Associate Professor of Global Health	JD	Yale University	Law	Leadership, Management, and Policy (DrPH)	50%
Feinberg	Emily	Associate Professor of Community Health Sciences	MSc MSN ScD	Harvard University Simmons College Harvard University	Maternal and Child Health Nursing Maternal and Child Health	Health Communication and Promotion (MPH)	0%
Felson	David	Professor of Epidemiology	MD MPH	Johns Hopkins University Boston University	Medicine Public Health	Epidemiology (MS, PhD)	0%
Ferguson	Ryan	Adjunct Clinical Assistant Professor of Epidemiology	DSc MPH	Boston University Boston University	Epidemiology Epidemiology	Epidemiology (MS, PhD)	0%
Fidler	Anne	Associate Professor of Environmental Health	MS ScD	Harvard University Harvard University	Occupational Health and Safety Environmental Science	Environmental Health (MS, PhD) Environmental Health (MPH)	80%
Fincke	Benjamin	Associate Professor of Health Law, Policy, and Management	MD	Yale University	Medicine	Health Services Research (MS, PhD)	45%
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)	25%

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)	Percent Time Allocated ³⁸
Fitzgerald	Elaine	Adjunct Clinical Assistant Professor of Community Health Sciences	DrPH	Boston University	Maternal & Child Health	Health Communication and Promotion (MPH)	0%
Fix	Gemmae	Research Assistant Professor of Health Law, Policy, and Management	PhD MA	Stony Brook University Stony Brook University	Anthropology Anthropology	Health Services Research (MS, PhD)	0%
Frakt	Austin	Associate Professor of Health Law, Policy, and Management	PhD SM/ScM	Massachusetts Institute of Technology Massachusetts Institute of Technology	Electrical Engineering Electrical Engineering	Health Services Research (MS, PhD)	3%
Frank	Deborah	Assistant Professor of Community Health Sciences	MD	Harvard University	Medicine	Community Assessment, Program Design, Implementation, and Evaluation (MPH)	0%
Fredman	Lisa	Professor of Epidemiology	MSPH PhD	University of North Carolina University of North Carolina	Epidemiology Epidemiology	Epidemiology (MS, PhD) Public Health Practice (MPH)	80%
Garvin	Lynn	Clinical Assistant Professor of Health Law, Policy, and Management	MBA PhD	Harvard University Brandeis University	Management Studies Health Policy Management	Healthcare Management (MPH) Health Services Research (MS, PhD)	0%
Getz	Kelly	Clinical Instructor of Epidemiology	MPH PhD	Boston University Boston University	Epidemiology Epidemiology	Epidemiology and Biostatistics (MPH)	0%
Gifford	Allen	Professor of Health Law, Policy, and Management	MD	University of North Carolina	Medicine	Health Services Research (MS, PhD)	0%
Green	Traci	Associate Professor of Community Health Sciences	MSc PhD	McGill University Yale University	Epidemiology Epidemiology	Health Communication and Promotion (MPH)	0%

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)	Percent Time Allocated ³⁸
Gunn	Christine	Research Assistant Professor of Health Law, Policy, and Management	MA	University of Western Ontario	Kinesiology	Healthcare Management (MPH)	0%
Hanchate	Amresh	Associate Professor of Health Law, Policy, and Management	MA PhD	University of Pittsburgh University of Wisconsin	Economics Economics	Health Services Research (MS, PhD)	0%
Hartmann	Christine	Research Associate Professor of Health Law, Policy, and Management	PhD MS	Bryn Mawr College Bryn Mawr College	Social Work Social Service	Health Services Research (MS, PhD)	0%
Hatch	Elizabeth	Professor of Epidemiology	MS PhD	Harvard University Yale University	Health Policy Management Epidemiology	Epidemiology and Biostatistics (MPH)	50%
Hermos	John	Associate Professor of Community Health Sciences	MD	Boston University	Medicine	Community Assessment, Program Design, Implementation, and Evaluation (MPH)	0%
Hernandez-Diaz	Sonia	Adjunct Assistant Professor of Epidemiology	MD MPH DrPH	Universidad Autónoma de Madrid Harvard University Harvard University	Medicine Quantitative Methods Pharmaco-epidemiology	Epidemiology and Biostatistics (MPH)	0%
Himali	Jayandra	Research Assistant Professor of Biostatistics	MSc PhD	Tribhuvan University Boston University	Statistics Biostatistics	Epidemiology and Biostatistics (MPH)	0%
Hochberg	Natasha	Assistant Professor of Epidemiology	MD MPH	Case School of Medicine Emory University	Medicine Public Health	Epidemiology and Biostatistics (MPH)	0%
Hutcheon	Jennifer	Adjunct Assistant Professor of Epidemiology	PhD	McGill University	Epidemiology	Epidemiology (MS, PhD)	0%

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)	Percent Time Allocated ³⁸
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)	0%
Huybrechts	Krista	Adjunct Assistant Professor of Epidemiology	MS PhD	University of Antwerp Boston University	Economics Epidemiology	Epidemiology (MS, PhD)	0%
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)	0%
Jacobson	Karen	Assistant Professor of Epidemiology	MD MPH	Johns Hopkins University Harvard University	Medicine Clinical Evaluation/Research	Epidemiology and Biostatistics (MPH)	0%
Jarrah	Zina	Adjunct Lecturer of Global Health	MPH	Boston University	Global Health Management	Program Management (MPH)	0%
Jasuja	Guneet	Research Assistant Professor of Health Law, Policy, and Management	PhD MPH	University of Southern California University of Southern California	Health Behavior Research Biostatistics	Health Services Research (MS, PhD)	15%
Jick	Susan	Adjunct Professor of Epidemiology	MPH DSc	Boston University Boston University	Epidemiology Epidemiology	Epidemiology and Biostatistics (MPH)	0%
Johnson	William	Associate Professor of Biostatistics	MS MA PhD	Brigham Young University Harvard University Harvard University	Statistics Biostatistics Biostatistics	Biostatistics (MA, MS, PhD)	0%
Kalesan	Bhindu	Assistant Professor of Community Health Sciences	MSc PhD MPH	Tamil Nadu Dr. M.G.R. Medical University Universität Bern Johns Hopkins University	Epidemiology Epidemiology Epidemiology	Community Assessment, Program Design, Implementation, and Evaluation (MPH)	0%

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)	Percent Time Allocated ³⁸
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)	55%
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)	0%
Killiany	Ronald	Associate Professor of Environmental Health	MA PhD	University of Hartford Northeastern University	Psychology Psychology	Environmental Health (MS, PhD)	0%
Kingsdale	Jon	Associate Professor of the Practice of Health Law, Policy, and Management	PhD MA	University of Michigan–Ann Arbor University of Michigan–Ann Arbor	History	Healthcare Management (MPH)	8%
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 Theological Seminary	Chemistry Medicine International Health Ministry	Program Management (MPH)	0%
Kramer	Jessica	Adjunct Assistant Professor of Health Law, Policy, and Management	MS PhD	University of Illinois, Chicago University of Illinois, Chicago	Occupational Therapy Disability Studies	Health Services Research (MS, PhD)	0%
Kuhlthau	Karen	Adjunct Assistant Professor of Community Health Sciences	MA PhD	University of Michigan–Ann Arbor University of Michigan–Ann Arbor	Population Sciences Population Sciences	Public Health Nutrition (MS)	0%
Laddis	Andreas	Adjunct Instructor of Community Health Sciences	MD	Aristotle University of Thessaloniki	Medicine	Community Assessment, Program Design, Implementation, and Evaluation (MPH)	0%

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)	Percent Time Allocated ³⁸
Lagasse	David A	Adjunct Clinical Instructor of Health Law, Policy, and Management	MA	University of Michigan–Ann Arbor	Economics	Healthcare Management (MPH)	0%
Laing	Richard	Professor of Global Health	MSc MD	University of London University of Zimbabwe	Community Health Medicine	Program Management (MPH)	50%
LaMorte	Wayne	Professor of Epidemiology	MD PhD MPH	University of Medicine and Dentistry of New Jersey Boston University Boston University	Medicine Biochemistry Epidemiology	Epidemiology and Biostatistics (MPH) Public Health Practice (Executive MPH)	50%
Lamstein	Joel	Adjunct Associate Professor of Global Health	BS	University of Michigan	Math Physics	Program Management (MPH)	0%
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)	0%
Lew	Robert	Associate Professor of Biostatistics	PhD MS	University of Michigan–Ann Arbor University of Michigan–Ann Arbor	Mathematics Mathematics	Biostatistics (MA, MS, PhD)	0%
Lewis	Elizabeth	Adjunct Assistant Professor of Global Health	MBA	Bentley College	Business Data Analysis	Global Health Program Design, Monitoring, and Evaluation (MPH)	0%
Linas	Benjamin	Associate Professor of Epidemiology	MD MPH	New York University Harvard University	Medicine Clinical Evaluation/Research	Epidemiology and Biostatistics (MPH)	0%
Lincoln	Alisa	Adjunct Professor of Community Health Sciences	MPH PhD	Boston University Columbia University	Social and Behavioral Sciences Social Sciences	Health Communication and Promotion (MPH)	0%
Logue	Mark	Associate Professor of Biostatistics	MS PhD	University of Iowa University of Iowa	Statistics Statistics	Biostatistics (MA, MS, PhD)	0%

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)	Percent Time Allocated ³⁸
Lopez	Russell	Adjunct Assistant Professor of Environmental Health	ScD	Boston University	Environmental Health	Environmental Health (MPH)	0%
Losina	Elena	Adjunct Associate Professor of Biostatistics	MSc PhD	Odessa National I.I. Mechnikov University Boston University	Mathematics Biostatistics	Biostatistics (MA, MS, PhD)	0%
Mahalingaiah	Shruthi	Assistant Professor of Epidemiology	MD MS	Harvard University Boston University	Medicine Epidemiology	Epidemiology (MS, PhD)	0%
Mahon	Barbara	Adjunct Assistant Professor of Epidemiology	MD MPH	University of California, San Francisco University of California, Berkeley	Medicine Epidemiology	Epidemiology and Biostatistics (MPH)	0%
Mangione	Thomas	Adjunct Associate Professor of Epidemiology	MA PhD	University of Michigan–Ann Arbor University of Michigan–Ann Arbor	Psychology Psychology	Epidemiology and Biostatistics (MPH)	0%
Marona	Cristin	Adjunct Lecturer of Global Health	MPH	Boston University	International Health	Global Health Program Design, Monitoring, and Evaluation (MPH)	0%
Mascoop	Ethan	Adjunct Clinical Instructor of Environmental Health	MPH MS	Boston University Boston University	Environmental Health Environmental Management	Environmental Health (MPH)	0%
Massaro	Joseph	Professor of Biostatistics	MA PhD	Boston University Boston University	Mathematics Mathematics	Epidemiology and Biostatistics (MPH)	80%
McCullough	Megan	Research Assistant Professor of Health Law, Policy, and Management	PhD MA	New York University New York University	Anthropology Anthropology	Health Services Research (MS, PhD)	0%
McInnes	Donald Keith	Research Associate Professor of Health Law, Policy, and Management	ScD MA	Harvard University Harvard University	Social and Behavioral Sciences Health Policy Management	Health Services Research (MS, PhD)	0%

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)	Percent Time Allocated ³⁸
McNair	Lindsay	Adjunct Assistant Professor of Epidemiology	MD MPH	University of Connecticut Boston University	Medicine Health Administration/ Education	Epidemiology and Biostatistics (MPH)	0%
Menon	Sandeep	Adjunct Assistant Professor of Biostatistics	MPH PhD	Boston University Boston University	Epidemiology Biostatistics	Biostatistics (MA, MS, PhD)	0%
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)	0%
Meterko	Mark	Research Associate Professor of Health Law, Policy, and Management	PhD MA	State University of New York at Buffalo Boston University	Psychology Psychology	Health Services Research (MS, PhD)	0%
Meyer-Rath	Katja Gesine	Research Assistant Professor of Global Health	PhD MD	Freie Universität Berlin Freie Universität Berlin	Physiology Medicine	Global Health Program Design, Monitoring, and Evaluation (MPH)	80%
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)	0%
Migliorini	Luigi	Adjunct Assistant Professor of Global Health	MD MPH	University of Siena Boston University	Medicine Public Health	Program Management (MPH)	0%
Milstein	Bobby	Adjunct Associate Professor of Community Health Sciences	MPH	Emory University	Social and Behavioral Sciences	Health Communication and Promotion (MPH)	0%
Minichiello	John	Adjunct Lecturer of Health Law, Policy, and Management	MBA	Northeastern University	Business Administration	Healthcare Management (MPH)	0%

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)	Percent Time Allocated ³⁸
Mohr	David	Research Assistant Professor of Health Law, Policy, and Management	PhD MA	Bowling Green State University Bowling Green State University	Psychology Psychology	Health Services Research (MS, PhD)	0%
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)	0%
Mwananyanda	Lawrence	Adjunct Research Assistant Professor of Global Health	MD MPH	Jagiellonian University University of Alabama Birmingham	Medicine Epidemiology	Leadership, Management, and Policy (DrPH)	0%
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)	0%
Neogi	Tuhina	Professor of Epidemiology	MD PhD	University of Toronto Boston University	Medicine Epidemiology	Epidemiology (MS, PhD)	0%
Orlando	Laura	Adjunct Assistant Professor of Environmental Health	MPA	Harvard University	Public Administration	Environmental Health (MPH)	0%
Outterson	Michael	Associate Professor of Health Law, Policy, and Management	JD LLM	Northwestern University University of Cambridge	Law Law	Health Policy and Law (MPH)	0%
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)	0%
Ozonoff	David	Professor of Environmental Health	MD MPH	Cornell University Johns Hopkins University	Medicine International Health	Environmental Health (MPH)	50%

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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)	0%
Palumbo	Carole	Research Associate Professor of Environmental Health	PhD	Boston University	Behavioral Neuroscience	Environmental Health (MS, PhD)	0%
Parker	Victoria	Adjunct Associate Professor of Health Law, Policy, and Management	EdM DBA	Harvard University Boston University	Education Organizational Behavior	Healthcare Management (MPH)	0%
Payne	Jonathan	Adjunct Instructor of Global Health	MS	Harvard University of Public Health	Health Policy Management	Global Health Program Design, Monitoring, and Evaluation (MPH)	0%
Pelton	Stephen	Professor of Epidemiology	MD	State University of New York at Buffalo	Medicine	Epidemiology (MS, PhD)	0%
Pencina	Michael	Adjunct Professor of Biostatistics	MA MA PhD	Warsaw University Warsaw University Boston University	Applied Mathematics American Studies Mathematics	Biostatistics (MA, MS, PhD)	0%
Pogoda	Terri	Research Assistant Professor of Health Law, Policy, and Management	PhD MS	Tufts University Tufts University	Experimental Psychology Experimental Psychology	Health Services Research (MS, PhD)	0%
Polak	Joseph	Assistant Professor of Health Law, Bioethics, and Human Rights	Rabbi	Rabbinical College of Quebec	Jewish Law and Mysticism	Health Policy and Law (MPH)	0%
Quatromoni	Paula	Associate Professor of Epidemiology	MS ScD	University of Maine–Portland-Gorham Boston University	Human Development, Nutrition Epidemiology	Public Health Nutrition (MS)	0%

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)	Percent Time Allocated ³⁸
Quintiliani	Lisa	Assistant Professor of Community Health Sciences	MA PhD	University of Massachusetts, Amherst University of North Carolina at Chapel Hill	Nutrition/Food Science Nutrition/Food Science	Public Health Nutrition (MS)	0%
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)	0%
Ramirez Rubio	Oriana	Adjunct Assistant Professor of Epidemiology	MD MPH PhD	Universidad Autónoma de Madrid Harvard University Universidad Autónoma de Madrid	Medicine International Health Medicine	Epidemiology and Biostatistics (MPH)	0%
Restuccia	Joseph	Associate Professor of Health Law, Policy, and Management	MPH DrPH	University of California, Berkeley University of California, Berkeley	Social and Administrative Health Sciences Healthcare Management	Leadership, Management, and Policy (DrPH)	0%
Ridzon	Renee	Adjunct Associate Professor of Epidemiology	MD	Saint Louis University	Medicine	Epidemiology (MS, PhD)	0%
Riefkohl Iisci	Alejandro	Adjunct Assistant Professor of Epidemiology	MD	Anahuac University	Medicine	Epidemiology (MS, PhD)	0%
Rothendler	James	Assistant Professor of Health Law, Policy, and Management	MD	Columbia University	Medicine	Health Services Research (MS, PhD)	40%
Rothman	Kenneth	Professor of Epidemiology	DMD MPH DrPH	Harvard University Harvard University Harvard University	Dental Medicine Epidemiology Epidemiology	Epidemiology (MS, PhD) Public Health Practice (MPH)	24%
Russmann	Stefan	Adjunct Associate Professor of Epidemiology	MD	Albert Ludwigs Universität Freiburg	Medicine	Epidemiology (MS, PhD)	0%

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)	Percent Time Allocated ³⁸
Ryan	Kathleen	Lecturer of Health Law, Policy, and Management	MPH PhD	Boston University Boston University	Public Health Health Services Research	Health Services Research (MS, PhD) Healthcare Management (MPH)	85%
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)	0%
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)	0%
Sandel	Megan	Associate Professor of Environmental Health	MD MPH	Dartmouth College Boston University	Medicine Environmental Health	Environmental Health (MS, PhD)	0%
Sanne	Ian	Adjunct Associate Professor of Global Health	MBBCh FCP (SA) DTM&H	University of the Witwatersrand College of Medicine of South Africa University of the Witwatersrand	Medicine and Surgery N/A Topical Medicine and Hygiene	Program Management (MPH)	0%
Saper	Robert	Associate Professor of Epidemiology	MD MPH	Harvard University Harvard University	Medicine Public Health	Epidemiology and Biostatistics (MPH)	0%
Scout		Adjunct Clinical Assistant Professor of Community Health Sciences	MA PhD	George Mason University Columbia University	Sociology Social Sciences	Health Communication and Promotion (MPH)	0%
Seage	George	Adjunct Associate Professor of Epidemiology	MPH DSc	Boston University Boston University	Environmental Health Epidemiology	Epidemiology (MS, PhD)	0%
Shimada	Stephanie	Research Assistant Professor of Health Law, Policy, and Management	PhD	Harvard University	Health Policy Management	Health Services Research (MS, PhD)	0%

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Sorensen	Henrik	Adjunct Professor of Epidemiology	MD PhD DMSc	Aarhus University Aalborg University Aarhus University	Medicine Health Services Research Clinical Epidemiology	Epidemiology (MS, PhD)	0%
Sparrow	David	Professor of Epidemiology	MS DSc	University of Massachusetts Amherst Boston University	Epidemiology Epidemiology	Epidemiology (MS, PhD)	0%
Spiro	Avron	Research Professor of Epidemiology	MS PhD	Pennsylvania State University Pennsylvania State University	Human Development Human Development	Epidemiology and Biostatistics (MPH)	38%
Squillace	Lynn	Adjunct Clinical Assistant Professor of Health Law, Policy, and Management	JD MPH	Suffolk University Boston University	Law Public Health	Health Policy and Law (MPH)	0%
Stang	Andreas	Adjunct Professor of Epidemiology	MD MPH	University of Cologne Boston University	Medicine Epidemiology	Epidemiology and Biostatistics (MPH)	0%
Stuver	Sherri	Clinical Professor of Epidemiology	ScD	Harvard University	Epidemiology	Epidemiology (MS, PhD)	50%
Sullivan	Jennifer	Research Assistant Professor of Health Law, Policy, and Management	PhD MS	University of Massachusetts, Boston University of Massachusetts, Boston	Medicine-Geriatric Medicine-Geriatric	Health Services Research (MS, PhD)	0%
Thwin	Soe Soe	Adjunct Assistant Professor of Biostatistics	MS PhD	University of Washington Boston University	Epidemiology Biostatistics	Biostatistics (MA, MS, PhD)	0%
Ulcickas Yood	Marianne	Adjunct Research Associate Professor of Epidemiology	DSc MPH	Boston University Boston University	Epidemiology Epidemiology	Health Services Research (MS, PhD)	0%
Vardi	Moshe	Adjunct Assistant Professor of Biostatistics	MD	Tel Aviv University	Medicine	Biostatistics (MA, MS, PhD)	0%

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)	Percent Time Allocated ³⁸
Vieira	Veronica	Adjunct Associate Professor of Environmental Health	MS DSc	Stanford University Boston University	Environmental Science Environmental Health	Environmental Health (MS, PhD)	0%
Vinceti	Marco	Adjunct Associate Professor of Epidemiology	MD PhD	University of Modena University of Milan	Medicine Public Health	Epidemiology and Biostatistics (MPH)	0%
Vokonas	Pantel	Professor of Epidemiology	MD	The Ohio State University	Medicine	Epidemiology (MS, PhD)	0%
Vorhees	Donna	Adjunct Assistant Professor of Environmental Health	ScM ScD	Harvard University Harvard University	Environmental Health Environmental Health	Environmental Health (MPH)	0%
Walker	Deborah	Adjunct Professor of Community Health Sciences	Med EdD	Harvard University Harvard University	Education Human Development	Health Communication and Promotion (MPH)	0%
Walkey	Allan	Associate Professor of Health Law, Policy, and Management	MD	UMass Medical School	Medicine	Health Services Research (MS, PhD)	0%
Walsh	Kathleen	Clinical Associate Professor of Health Law, Policy, and Management	MPH	Yale University	Healthcare Administration	Healthcare Management (MPH)	0%
Weinberg	Janice	Professor of Biostatistics	MS ScD	University of North Carolina at Chapel Hill Harvard University	Biostatistics Biostatistics	Epidemiology and Biostatistics (MPH)	75%
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)	90%
White	Roberta	Professor of Environmental Health	MA PhD	Wayne State University Wayne State University	Clinical Psychology Clinical Psychology	Environmental Health (MS, PhD) Environmental Health (MPH)	50%

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)	Percent Time Allocated ³⁸
Wolff	James	Associate Professor of Global Health	MAT MD MPH	Harvard University Columbia University Harvard University	Education Medicine Public Health and Tropical Medicine	Global Health Program Design, Monitoring, and Evaluation (MPH) Program Management (MPH)	75%
Woodson	Jonathan	Professor of the Practice of Health Law, Policy, and Management	MD	New York University	Medicine	Health Policy and Law (MPH)	0%
Xanthakis	Vanessa	Assistant Professor of Biostatistics	MS PhD	National University of Athens Boston University	Applied Mathematics Biostatistics	Epidemiology and Biostatistics (MPH)	0%
Yazdy	Mahsa	Adjunct Assistant Professor of Epidemiology	MPH PhD	Emory University Boston University	Epidemiology Epidemiology	Epidemiology (MS, PhD)	0%
Zaman	Muhammad	Assistant Professor of Global Health	MS PhD	University of Chicago University of Chicago	Chemistry Chemistry	Program Management (MPH)	0%
Zhang	Bin	Adjunct Research Assistant Professor of Biostatistics	MA DSc	University of Michigan–Ann Arbor Harvard University	Statistics Biostatistics	Biostatistics (MA, MS, PhD)	0%
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)	0%
Zuckerman	Barry	Professor of Community Health Sciences	MD	Georgetown University	Medicine	Community Assessment, Program Design, Implementation, and Evaluation (MPH)	0%
Zurovac	Dejan	Adjunct Assistant Professor of Global Health	MD PhD	University of Zagreb The Open University	Medicine Epidemiology	Global Health Program Design, Monitoring, and Evaluation (MPH)	0%

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% funding coverage based on a mix of education, research, and service activities that serve the school. The primary instructional faculty are qualified to provide instruction and advising in the specialization area due to their training, extensive research, and/or experience in the field. The non-primary instructional faculty have less than 100% funding coverage and are qualified to provide instruction and advising in their areas of expertise based on their training, research, and/or 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. Because 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 schoolwide events, including teaching workshops, School Assemblies, seminars, public health fora, and symposia. All faculty, regardless 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 school has a large primary faculty with excellent educational backgrounds, a distinguished record of research, and a broad range of practice experiences. The secondary and adjunct faculty are equally distinguished and provide an added dimension to the school's instructional programs. The secondary and adjunct faculty come from a variety of schools across Boston University as well as from healthcare institutions and agencies.

The interdisciplinary nature of the master-level curriculum allows faculty to work across department and disciplinary boundaries, which benefits both faculty and students. However, the increase in concentrations/certificates requires faculty to become proficient in more program options in order to advise students appropriately. The school continues to monitor instructional faculty resources to ensure that numbers of faculty are appropriate for the size of the student body and support regular and substantive student-faculty interactions.

SPH considers it a strength that the school is organized in a way that invites *all faculty*, across all tracks and areas of interest, to be immersed in the life of the school and to contribute to strategic initiatives, particularly those related to teaching, advising, and mentoring students. Curricular changes and new program options and requirements necessitated thoughtful examination of the teaching, advising, and

educational mentoring needs of the school. The Dean's Task Force on Educational Programs and Faculty Teaching Opportunities was formed to solicit extensive faculty feedback and to develop guidance and recommendations on how to best align the teaching program with faculty expertise and interests in order to create and sustain the best possible educational offerings. The task force's recommendations are an effort to ensure that faculty teach, advise, and mentor in their areas of expertise, and that all faculty, students, and staff are fully supported in teaching, learning, and advising.

As described in criterion H1, faculty are regularly engaged in training related to student advising and support.

E2. Integration of Faculty with Practice Experience

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 based on their 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 are selected for their practice experience, and often hold, or have recently held, 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:
 - Alan Balsam, former Director of Public Health and Human Services, Brookline, Massachusetts; and was appointed by the State Treasurer to the Cannabis Advisory Board member, Commonwealth of Massachusetts;
 - Eugene Benson, Executive Director of the Massachusetts Association of Conservation Commissions and former associate general counsel to the Massachusetts Water Resources Authority;
 - Sean Cahill, Director of Health Policy Research at the Fenway Institute at Fenway Health in Boston. He is a member of the Special Legislative Commission on Lesbian, Gay, Bisexual and Transgender Aging for the Commonwealth of Massachusetts, Associate Editor of the journal LGBT Health, and is a faculty member of the National LGBT Health Education Center;
 - Mark Chang, Senior Vice President, Strategic Statistical Consulting at Veristat;
 - Robin Dodson oversees consumer product exposure research at Silent Spring Institute and leads Silent Spring's Healthy Green Campus project, a research effort aimed at making health an integral part of sustainability practices on college campuses;
 - Barbara Mahon, Director of the Division of Bacterial Diseases, National Center for Immunization and Respiratory Diseases;
 - Sandeep Menon, Vice President of Biostatistics and Head of the Research and Consulting Center at Pfizer;
 - 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;
 - Soe Soe Thwin, Statistician, and Manager in the Department of Reproductive Health and Research, World Health Organization, Geneva, Switzerland; and
 - Mahsa Yazdy, Director of the Massachusetts Center on Birth Defects Prevention, surveilles birth defects and stillbirths in Massachusetts and oversees a state-wide study of birth defects in partnership with the CDC.

- 2) A number of primary faculty bring significant practice experience to the school. Primary faculty with a depth of public health practice experience prior to working in academia include:
 - Carol Dolan, PhD, Clinical Associate Professor of Community Health Sciences, is a former behavioral health research scientist with Walter Reed Army Research Institute.

- Mari-Lynn Drainoni, PhD, MEd, Associate Professor of Health Law, Policy and Management is a former behavioral health provider at the Dorchester Counseling Center, Cardinal Cushing High School and Family Service Association of Greater Boston. She also was the first Behavioral Health Director at Community Medical Alliance, a managed care plan for person with disabilities and chronic illness, and Neighborhood Health Plan, a Medicaid HMO.
 - Sophie Godley, DrPH, MPH, Clinical Assistant Professor of Community Health Sciences, is the former Deputy Director of AIDS Action Committee in MA.
 - Emily Feinberg, ScD, CPNP, Associate Professor of Community Health Sciences, serves as a nurse practitioner, splitting her time between academia and community health centers. Past work has included diagnosing maternal depression through pediatric visits and she currently works to get adequate health services for youth with autism.
 - Wendy Heiger-Bernays, PhD, Clinical Professor of Environmental Health, was a senior scientist at an environmental consulting firm providing technical and project management for projects related to human health risk assessment for over 10 years.
 - Chris Louis, PhD, Assistant Professor of Health Law, Policy and Management had nearly a decade of health care industry experience prior to joining BUSPH. He was a hospital administrator for two HCA hospitals on the west coast of Florida, a Strategic Planning Consultant at St. Clare's Health System in Denville, NJ, and a Senior Consultant at Kurt Salmon and COPE Health Solutions.
 - Steven D. Pizer, PhD, Associate Professor of Health Law, Policy and Management is the former Executive Director of Massachusetts Citizen Action and currently serves as Chief Economist for the Partnered Evidence-based Policy Resource Center in the US Department of Veterans Affairs.
- 3) 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:
- George Annas, JD, MPH, Professor of Health Law, Ethics, and Human Rights, works with the Immigrant Rights Committee at Boston Medical Center to develop hospital policies to protect immigrants.
 - Edward Bernstein, MD, Professor of Community Health Sciences, was appointed by the Governor of Massachusetts as a member of the Massachusetts Department of Public Health Public Health Council.
 - Dan Brooks, DSc, Associate Professor of Epidemiology, is a Board Member, Consortium on Epidemic Nephropathy in Central America and Mexico (2012-present), Co-convener, 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).
 - Anita DeStefano, PhD, Professor of Biostatistics, runs STEM programs for young children and teenagers at the Blackstone Community Center.
 - Rich Feeley, JD, Associate Professor of Global Health, works with the Council of Europe surveying health care systems in Moldova, Belarus, Ukraine, Georgia, and Armenia and their vulnerability to corruption.
 - Jacey Greece, DSc, MPH, Clinical Assistant Professor of Community Health Sciences, has a wide variety of projects with Boston Public Health Commission, including preventing obesity and promoting food access in youth of color, preventing homelessness in LGBTQ youth in Boston, preventing chlamydia in college-aged youth and by engaging providers, and preventing chronic marijuana use in school-aged children.
 - Patricia Janulewicz, DSc, Assistant Professor of Environmental Health, serves on the occupational and environmental workgroup for Mother to Baby, a non-profit providing

evidence-based information to mothers, health care professionals, and the public about medications and other exposures during pregnancy and while breastfeeding.

- Sarah Ketchen Lipson, PhD, Assistant Professor of Health Law, Policy, and Management, co-chairs the National Network of Depression Centers' College Mental Health Task Force, leading research and practice to address mental health issues on college and university campuses across the country.
 - Keith McInnes, ScD, MSc, Research Associate Professor of Health Law, Policy and Management, serves on the Committee on Veterans of the State of Massachusetts' Interagency Council on Housing and Homelessness (2017-present) and co-founded, and co-led for its first two years, the Patient Technology Workgroup (a patient-member advisory group) at Boston Healthcare for the Homeless Program, Boston, MA (2016-2018).
 - Gesine Meyer-Rath, MD, PhD, Research Assistant Professor of Global Health, works with South Africa's National AIDS Council, Geospatial Analysis Working Group by contributing to efforts to model data on sub-district level HIV prevalence in South Africa.
 - David Rosenbloom, PhD, Professor of Health Law, Policy, and Management works with local law enforcement on the Police Assisted Addiction Recovery Initiative to help police departments nationwide implement non-arrest programs for individuals with substance use disorders.
 - Emily Rothman, ScD, Professor of Community Health Sciences, served on the board of HEAL Trafficking and served as their research director.
 - Madeleine Scammell, DSc, Associate Professor of Environmental Health, is vice-chair of the Board of Directors of GreenRoots, a community-based environmental justice organization in Chelsea, and also serves on the Chelsea Board of Health.
 - Taryn Vian, PhD, Clinical Professor of Global Health, has worked with USAID, WHO, UNDP, the Council of Europe, and Transparency International to understanding the adverse effects of corruption.
 - Veronika Wirtz, PhD, Associate Professor of Global Health, co-chaired The Lancet Commission on Essential Medicine Policies from 2014-2016.
- 4) 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:
- Kathleen MacVarish, MS, Associate Professor of the Practice of Environmental Health, has served as a local Board of Health Agent in Massachusetts for 15 years. She now leads the Local Public Health training Institute of MA and is the co-PI of the School Health Institute for Education and Leadership Development (SHIELD). She also teaches PH712: Public Health Response to Emergencies in the United States; and
 - Jon Kingsdale, PhD, Associate Professor of the Practice of Health Law, Policy, and Management, was the founding Executive Director of the Commonwealth Health Insurance Connector Authority and former senior executive for Tufts Health Plan. He 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 fewer faculty appointments into the practice track than is optimal. 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

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 examining each year's work and then prospectively creating a development plan. A formal annual faculty meeting with the department 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 is designed to identify 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 began overseeing the systematic review of all course syllabi in Summer 2018. 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 reviews differently. Some departments discuss the course with the instructor and review 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.

Departmental course reviews are documented and describe the process, findings, and recommendations. Reports are reviewed by the instructor and relevant department chair. A summary of the final report is shared with the Education Committee. A recent course review is available as [ERF E3.1.1](#).

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 includes 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 students achieving the desired competencies.

Student course evaluations are used to help evaluate instructional effectiveness. Course evaluations are administered by the Education Office for every course, and students typically have 10 days to complete the online evaluation upon completion of the course. Students receive an email and up to four reminders

urging them to complete the evaluation form. The school stresses the importance of professional feedback from students 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 are available for faculty review at the close of each semester. All faculty can 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 include the most recent offerings of all courses.

Course evaluation feedback allows faculty to learn how students experienced the course and informs faculty decision-making 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 academic programs, presenting on topics related to pedagogy, instructional roles, and innovations in the classroom, and participating actively in teaching and learning events. For example:

- The Boston University **Center for Teaching and Learning (CTL)** works with SPH faculty to cultivate teaching that is inclusive, centered on student learning, and guided by educational research. CTL offers individualized faculty 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 conduct workshops at Education Retreats (described below).
- **John McCahan Education Day** is an annual daylong 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** is a monthly lunch and learn workshop. Examples of past topics include: teaching and learning in mixed classrooms, helping to 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.

To support excellence and continuous improvement in education, the school offers **Educational Innovation Awards** which support promising educational pilot projects proposed by SPH faculty. These awards are intended to strengthen the school's competency-based educational programs through innovative teaching, assessment, and/or evaluation. Priority is given to pilot proposals that are interdisciplinary in nature, have the potential for impact on teaching and learning, and have the potential for broader implementation 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 regarding education, scholarship, service, and citizenship for appointment and promotion to each academic rank. 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 instructional activities and are evaluated on their teaching using the same criteria. The guidelines broadly define teaching contributions that are considered in promotion decisions and include:

- Serving as primary instructor or co-instructor in courses;
- Major or primary dissertation advisor for doctoral students;
- 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;
- 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: annual or other regular reviews of faculty productivity, relation of scholarship to instruction
- Faculty instructional technique: student satisfaction with instructional quality
- School-level outcomes: teaching assistants trained in pedagogical techniques

(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 discuss how these activities translate into the classroom. In Fall 2018, the school will be instituting new guidelines to ensure that faculty teaching loads are balanced to include an equal number of required courses and courses in their area of specialization. The latter, in particular, ensures that faculty are providing instruction in their areas of expertise and exposes students to faculty working in particular areas.

The AFR reflects the school and university's commitment to faculty development. If gaps are identified during the annual meeting, the chair refers the faculty member to the appropriate professional development resources. 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 encompasses the review of all faculty, including those with secondary and adjunct appointments. The AFR process and outcomes are reviewed by the Governing Council each year and updated as necessary.

Faculty instructional technique: student satisfaction with instructional quality

Course evaluations are administered at the end of every course 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.

The Course Evaluation Revision Working Group is currently collecting feedback on a new course evaluation tool that is more focused on competency attainment and on specific aspects of course design that can lead to course revisions. The timing and format of the course evaluations are also being reviewed in the hopes of increasing response rates. Once the new course evaluation tool is implemented, the Education Committee will be responsible for monitoring the quality of student feedback and response rates. If necessary, the Education Committee will make adjustments to the tool by adding or deleting specific questions to the process over time.

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. The Education Committee monitors the TA training program, and faculty representatives on the Education Committee are responsible for gathering and reporting feedback from their respective department faculty. Over the past three years, the trainings have been updated to address faculty feedback and new university policies, including the addition of a mandatory Title IX training and specific instruction for TAs of writing intensive courses on giving meaningful feedback.

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;
- Conducting midpoint evaluations in the course for the benefit of the instructor and the students;
- Engaging and facilitating difficult conversations;
- FERPA 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;
- Introduction to Blackboard; and
- Title IX training with a representative from the BU Equal Opportunity Office.

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 formed a working group comprised of faculty from across departments and staff from the Education Office to develop 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

1) Describe the school's definition of and expectations regarding faculty research and scholarly activity. (self-study document)

The school is dedicated to generating new knowledge to help solve public health problems that exist on local, national, and global levels. Faculty engagement in scholarship and research ensures that students are presented with cutting-edge methods in applied contexts that are both current and significant. 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; and
- 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 during 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 toward non-academic stakeholders. This is particularly true for practitioners who may generate reports, or create new approaches to resolving a public health problem, but who do not submit work to peer-reviewed journals.

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 of 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 tracks 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 organization of leading research universities in the United States and Canada, and received over \$487 million in research awards in FY18. 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 \$46 million of external awards in FY18. 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 established 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 31 projects with more than \$580,000 over the last three years.
- 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 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 receives a startup package that includes discretionary funds, and all faculty members who are at least half-time receive annual discretionary funds of \$2,000. Discretionary funds may be used to support their professional development or research, teaching, and service activities. For example, faculty often use discretionary funds to support travel to professional meetings to present their research or to cover the costs associated with publishing in peer-reviewed journals. Discretionary funds automatically roll over from year to year and may be supplemented by other BU sources.
- The school's Biostatistics 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 interacts 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 among 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 writing 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 multistressor 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 student projects are modeled on 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, *Exchange Politics: Opposing Obamacare in Battleground States* (Oxford University Press), which focuses on how states decided what type of health insurance exchanges they would establish under the Affordable Care Act's implementation. Professor Jones was able to use his research on the controversies and events as the ACA was implemented as the basis for teaching about health policy as it was actually being developed across the United States.

Professor Lisa Fredman in the Department of Epidemiology investigates the health risks associated with psychosocial factors with special attention to elderly populations. In her 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 data sets from recent 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 GH745: Monitoring and Evaluation of Global Health Programs, Professor Halim creates opportunities for students to develop the practical skills of program monitoring and evaluation by using her work to inform the development of applied exercises in which students prepare and critique 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 uses his own research projects as the basis for providing students the opportunity for hands-on experiential learning. Students have the firsthand experience of analyzing continuous, dichotomous, and time-to-event clinical trial data derived from Professor Massaro's research, and must interpret their results and present their findings.

Though these are just some specific examples, the vast majority of faculty bring elements of their research and scholarly experiences into the classroom through the assignment of relevant journal articles, the use of case studies, and/or the use of exercises or projects designed to emulate aspects of an authentic research experience similar to the professor's.

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 various opportunities for students to participate in faculty research in paid and volunteer capacities. In 2017, 61% of faculty worked with students on research, and 54% of the school's funded research involved an SPH student. The nature and extent of involvement varies by the level of interest and skills of each student. Opportunities for participation range from voluntary or temporary part-time contributions (e.g., acting as field investigators), directed research opportunities which are defined research activities/experience for course credit, employment as a research assistant funded via extramural awards for specific projects, and doctoral research which involves multiyear engagement in conduct research to produce a doctoral dissertation. A few specific examples follow.

Increasing Equitable Access to Safe Deliveries in Zambia. 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 and MBA/MPH students who engaged in building finance and sustainability tools for maternal waiting homes, implementing electronic qualitative and quantitative data collection systems for baseline and routine data collection, producing qualitative codebooks for in-depth interviews and focus group discussions, designing communication materials for donors and the general public, performing gap analysis on community needs, performing GIS mapping to understand the distance barrier, and 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.

A project to investigate an epidemic of **chronic kidney disease** in Central America involved a collaboration among faculty in the departments of Biostatistics, Environmental Health, and Epidemiology. This project focused on identifying the cause(s) of an epidemic of chronic kidney disease that primarily affected male manual laborers in Central America. Student involvement 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 world-renowned **Framingham Heart Study (FHS)** has been investigating risk factors for cardiovascular disease since 1948 and created the term and concept of “risk factor.” Over the years, the FHS research portfolio has expanded to include aging, arthritis, osteoporosis, lung disease, hearing/vision disorders, and dementia, and has included the involvement of dozens of SPH students. Over the past several years, seven MPH students worked as research assistants for 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-generational participants.

The mission of the **NIEHS-funded Superfund Research Program (SRP)** is to find solutions to the complex health and environmental issues created by the nation’s hazardous waste sites, with the ultimate goal of understanding and breaking the link between chemical exposure and disease. The SRP includes five research projects and four cores, including a training core which coordinates the training experience of all trainees engaged in SRP research, and involves faculty from the Epidemiology and Environmental Health departments. In the most recent funding cycle, the 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 affect adipose and bone homeostasis; the Community Engagement Core (PI Scammell) focused on linking SRP scientists with residents and community groups in affected neighborhoods to raise awareness of environmental and public health concerns and increase the utility of SRP research; and the Research Translation Core (PI Heiger-Bernays) focused on communicating the research outcomes 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 health care, identifying best practices and working with operational and policy leaders within the VA to implement findings to improve clinical care. 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.

Every year 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 promotion review packet. This documentation includes an updated CV that details research and their 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 area, a summary of plans for future research and scholarship, 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). These contributions are also evaluated at each stage of the promotion 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.

- Number of articles published in peer-reviewed journals
- Total research funding
- Presentations at professional meetings

(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 (2016)	Year 2 (2017)	Year 3 (2018)
Number of articles published in peer-reviewed journals ³⁹	900/year by 2020	761	685	1,185
Total research funding	\$45,000,000 by 2020	\$40,418,299	\$45,077,558	\$40,451,793
Faculty presentations at professional meetings ²⁴	750 by 2030	522	441	529

³⁹ Data for these two outcome measures are gathered as part of the Annual Faculty Review (AFR). In 2017, SPH changed the AFR timeline from the academic year to the calendar year. The change in AFR timing accounts for the apparent decrease from 2016 to 2017. Moving forward, the annual data will be directly comparable on a calendar year basis.

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

The school's faculty make important contributions to public health research and scholarship. The amount and quality of faculty research are reviewed during annual reviews and are an essential part of the criteria for promotion. 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 assisted by the university's Office of Sponsored Programs and Post Award Financial Operations office, which are able to quickly respond to requests from SPH faculty, grants administrators, and SPH administration. The Associate Dean of 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 discussed in E4.2, to complement the university-level resources, the school provides extensive financial and intellectual resources to support the research and scholarly activities of our faculty. The financial resources include startup 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 of 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.

E5. Faculty Extramural Service

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)

SPH defines faculty service as an explicit activity undertaken for the benefit of the greater society, above and beyond what is accomplished through instruction and research. Service refers to contributions of professional expertise to the public, including professional practice. Examples of service include 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; serving as members of community-based organizations, community advisory boards, or other groups; and public health practice that serves the community. The school distinguishes this from citizenship and administrative activities, which are internal to the school and include committee participation or mentoring student groups.

Boston University's definition of faculty service includes activities internal and external to the university. A stronger emphasis is placed on internal activities, including mentoring and advising students and serving on committees at the departmental, school/college, or university level. The university policy on **External Faculty Service** limits outside professional activities to one day per week.

SPH faculty are expected to participate in service. These expectations are outlined in the school's appointment and promotion guidelines, and progress toward meeting these expectations is discussed by the faculty member and chair during the Annual Faculty Review.

2) Describe available university and school support for extramural service activities. (self-study document)

SPH has a culture that encourages service by faculty (as well as students and staff), recognizing that it is an essential part of the school's mission and strategy map, and is incorporated into faculty expectations as a criterion for promotion. The school supports service through a robust and versatile Activist Lab, salary coverage for all compensated faculty, and targeted faculty development funds.

The Activist Lab is committed to activism that results in health improvements in local, regional, and global communities. The school financially and administratively supports the Activist Lab to develop programs that address the public health issues that affect Boston neighborhoods and practitioner communities, as well as practitioner communities across the United States. The Activist Lab focuses its work on three main areas: workforce development, firearms, and urban solutions. As addressed 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 and communities. Under its urban solutions focus, the Activist Lab implements programs and services that address public health issues of homelessness, addiction, and people with mental health problems while addressing the corrosive effects of 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 addressed 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.

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 which focused on developing teens' skills in critical thinking and contextual analysis. In preparation for creating the curriculum, she had students in her course SB752 (Sexually Explicit Media and Public Health Methods) conduct interviews with high school students and conduct 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 sexual 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.

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, Dr. Levy and EH804 students have continued to collaborate with the BOS Fair Skies Coalition to conduct additional exposure studies.

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 10 essential public health services to their communities. This deep commitment to serving the Massachusetts public health workforce has informed Professor MacVarish's teaching both in terms of conducting grant-based continuing education activities for public health practitioners and creating and teaching 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 Massachusetts, such as the 2013 Marathon Bombing. Her MHOA service enables her to directly connect with health officers involved in these incidents and bring their experiences, expertise, and insights to the classroom.

Harold Cox, Associate Dean of Practice and Associate Professor of Community Health Sciences, has served on the Massachusetts Public Health Council for more than 10 years. The PHC was created by the legislature in the 1800s and was legislatively reconstituted in 2007 as part of the state's health reform measures. It is responsible for approving proposed Massachusetts Department of Public Health regulations; reviews and approves healthcare facility Determination of Need applications; provides the Commissioner of Public Health with authority to act in public health emergencies; and is the primary advisory group to the Massachusetts Public Health Department. As a result of his ongoing membership on the PHC, Dean Cox has played an essential role in 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 current topic items under consideration at the Council, including tobacco use reduction, marijuana legalization, and responding to the opioid epidemic. He also brings students to open council meetings where they can experience firsthand how public health policy is debated and created on a statewide level.

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 of Practice and Associate Professor of Community Health Sciences, works to promote activism that leads to lasting improvements in the health of BU's local, regional, and global communities. Each year, two Activist Student Fellows collaborate with Activist Lab faculty and community partners on activism initiatives. Examples of these initiatives include developing policy and legislation to improve the public health infrastructure in Massachusetts and developing marketing campaigns for the use of Extreme Risk Protection Orders to reduce gun violence.

Boston Healthy Start Initiative (BHSI) student fellowships. As the Principal Investigator for the Maternal and Child Health Center of Excellence, Professor Lois McCloskey, Associate Professor of Community Health Sciences, oversees 10 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. The Blackstone Community Health Center serves the South End and Lower Roxbury neighborhoods. Its mission is to enhance the quality of life for Boston's residents by supporting children, youth, and families through a variety of programs and services. Professor Anne Fidler, Assistant Dean of Practice and Associate Professor of Environmental Health, leads an annual Spring Break Challenge, which engages approximately 30 SPH students in a weeklong intensive program focused on a public health concern identified by the Blackstone staff. Examples of such public health concerns include social barriers discouraging youth from local public housing developments from using the facilities and the lack of culturally appealing programming for elders. With guidance from the school faculty, students conduct literature reviews and qualitative research into the issues and provide culturally and organizationally appropriate recommendations to the Blackstone staff.

Global Health Storytelling Fellowships. Offered to two or three students annually, this fellowship is maintained by the Boston University Program for Global Health Storytelling. Professor Jennifer Beard, Clinical Associate Professor of Global Health and one of the program's founders, provides guidance to SPH student fellows selected to report on specific international health topics. Past topics have included suicide risk in Guyana and reproductive health in El Salvador during the Zika virus epidemic. Fellows' reports are published by the Pulitzer Center. The goal of the fellowship is to improve mutual understanding and foster collaboration between global health specialists and journalists so that complex health problems can be better understood and addressed.

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.

- Number of faculty-student service collaborations
- Number of community-based service projects
- 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 communities. 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–FY2018

Indicator	Year 1 (FY2016)	Year 2 (FY2017) ⁴⁰	Year 3 (FY2018)
Number of faculty-student service collaborations	Data collection began in FY2017	95	143
Number of community-based service projects involving faculty	51	45	49
Public/private or cross-sector partnerships for engagement and service	106	112	120

The school revised the Annual Faculty Review to capture faculty-student collaborations in 2017. Faculty describe their service collaborations, including details on external organizations they partnered with, types of service projects they conducted, and the roles students played in the projects.

Community-based service projects further the school’s mission and are an integral part of the school’s strategy map goals, with a target of 250 annual service projects conducted by faculty, staff, and students by 2030. Faculty service data is collected via the Annual Faculty Review. While the school counts service on editorial boards as part of the criteria for promotion, this measure is limited to service activities conducted in community-based settings.

As the strategy map demonstrates, 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.

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 positions in municipal agencies, and

⁴⁰ In 2017, the school aligned the Annual Faculty Review with the calendar year. The 2017 AFR data reflects five months of activity; 2016 and 2018 data captures a full year of activity.

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](#).

As part of the promotion process, faculty are required to describe the amount and nature of their extramural service activities in their promotion documents, which are then reviewed by their department chairs and considered by the Appointments and Promotions Committee when making promotion recommendations.

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. There are specific service-related criteria for appointment and promotion, and it is an explicit component of the Annual Faculty Review process. The school provides 10% salary coverage for faculty to have protected time for both service and citizenship, reflecting our collective and fundamental responsibility for engaging in such activities. This approach to faculty extramural service creates high expectations for faculty performance in this area. The school facilitates and encourages faculty to involve students in their service activities.

F1. Community Involvement in School or Program Evaluation and Assessment

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 are 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 could affect 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 selected SPH alumni to represent the 9,500 alumni of the school
- Provides feedback to the Assistant Dean of Development and Director of Development to assist in the development and execution of engagement strategies that increase alumni engagement through event attendance, student mentorship, and fundraising appeals

Education Advisory Board

- Includes alumni, practitioners, and community members
- Provides 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 and Practicum Office

- In addition to the School's annual survey, the Career 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

- Includes 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

- Includes 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 Health 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 healthful 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 Health Care for the Homeless Program and the 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 the 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 the skills that enable them 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 highest quality and professionally relevant educational programs possible. The EAB meets three times per year 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 are strong advocates for creating academic-industry partnerships, including the facilitation of practicum placements. The diverse opinions, skills, and backgrounds from across the pharmaceutical sector help ensure that the curriculum addresses the rapidly changing needs of the field. Members serve three-year terms, meet quarterly, and advise the program on job market trends and the skills that employers seek.
- The **Applied Biostatistics Advisory Board** ensures that the Master of Science program meets the demands of employers. 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 helped select lifelong learning 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 (e.g., focus groups, informational interviews, community engagement). The experience has spurred a number of students to conduct their practicum at Blackstone or to 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 the policy implications of public health interventions while getting to know the neighborhood surrounding the campus.
- Employer feedback provided to the **Career 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 and Practicum Office staff. In addition, the Career and Practicum Office routinely engages in formal and informal communication with employers about potential 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 the 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 interviews 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 the 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 document was reviewed and discussed with the Dean's Advisory Board, Alumni Leadership Council, Practice Advisory Board, and Education Advisory Board in Spring 2018. It was distributed twice via the school's Sunday newsletter, *SPH This Week*, which has a circulation of over 20,000 alumni, community partners, practicum supervisors, BU faculty and staff, and faculty and staff at schools and programs of public health across the country. Finally, feedback on the preliminary self-study was requested from 220 current and past practicum supervisors. These reviews provided an opportunity for community members to comment on the accuracy and completeness of the draft document. Their responses have been integrated into the final self-study.

c) Assessment of changing practice and research needs

The school engages community members in assessing changing practice and research on an ongoing basis through the various committees and processes described above. 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, which provides faculty with insights into changing research and practice needs.

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, such as 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, health care, 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 to 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

The annual School Survey gathers information both from employer responses to questions about the competence of graduates they have hired and from asking alumni to reflect on their own sense of competence to perform in their jobs. 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 that recent graduates may lack professional 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 enable practicum supervisors to orient students to the behavioral expectations of the practicum organization and assignment.

As indicated in criterion **B5**, SPH also conducts focus groups with alumni during the APHA and ASPPH annual conferences to gather rich qualitative data about alumni experiences in the job market and with their professional experiences.

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, 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 variety 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 development. Input is often disseminated schoolwide through presentations at School Assemblies and department meetings. Relying on these unsystematic presentations sometimes leads to inadequate communication about these matters. 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

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 an essential aspect 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 has always been at the forefront of providing critical social services to vulnerable populations. As reflected in our commitment to public health practice, orientation introduces students to the numerous social service organizations that surround our school. During the Life on Albany Street presentation at orientation, students learn about the rich history of care and social services provided by the BU Medical Campus and local community agencies. They are then introduced to the concepts of community engagement and social determinants of health. Students then engage in "Practice Plunge," where they analyze the surrounding community to identify factors that influence public health. At the end of orientation, students are encouraged to engage in service-learning opportunities offered in and around Boston. Student service-learning activities have included volunteering at the Greater Boston Food Bank; Boston Health Care for the Homeless; The Pine Street Inn, a local homeless shelter; and the Women's Lunch Place, a food assistance and shelter program.

Fall 2017 orientation highlights:

- 380 students participated in new student orientation;
- Students became familiar with 32 health-related sites surrounding campus as part of Practice Plunge; and
- 120 students participated in 16 service activities during orientation.

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 connect students with many of the service organizations mentioned at orientation and introduce them to advocacy projects. Examples of the Boston Project service projects include the citywide 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 include:

- 12–20 service activities annually; and
- 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 receive leadership training and professional development, maintain their own (modest) budget, and practice communication and professional skills to support their peers, facilitate meetings, and conduct 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 schoolwide 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 meal 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 a holiday celebration for the Barkley Housing Community. The annual holiday celebration engages more than 350 residents and community partners, such as Toys for Tots, the Boston Police Department, the Public Health and Housing Community Committee, Boston Housing Authority, and Boston University Brothers United, and 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 include:

- 14 student organizations with approximately 500 student members;
- Leadership and professional development training for student leaders; and
- 15 annual service activities sponsored by student organizations.

Activist Lab

The Activist Lab provides students with opportunities to serve our local communities 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 the fundamentals of public health advocacy. For students interested in learning more, the Activist Lab offers daylong 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," and many of the funded projects serve groups in our surrounding community. For example, a recently funded project introduced area youth to community gardening. The program trained the youth how to garden and how to manage a project. The Activist Bucks program is described further in criterion F2.2.

Activist Lab highlights include:

- 20–30 *SPH This Week* postings annually on public health activism;
- 400+ students participate in Advocacy Primer;
- 60–70 students participate in Advocacy Bootcamp; and
- 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, sharing their experiences with their peers. In the past four 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. The school's Community Scholars Program recruits and supports

practitioners with at least two years of work experience in non-profit settings who continue to work while attending classes on a part-time basis. The school showcases the achievements of these community scholars annually at a schoolwide symposium. Scholars 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 partial tuition support annually to two students (four credits each) who volunteer their professional expertise to a public health service organization one day a week. The **Leadership Education in Neurodevelopmental and Related Disabilities (LEND) Fellowship Program** offers eight credits and a \$12,000 stipend for a student who demonstrates experience with children with special healthcare needs (CSHCN) and related policy. The school's **Public Health Post Fellowship** provides training for master's students in science translation and health journalism. On average, the Public Health Post Fellows collectively write 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.

Massachusetts Student Health Policy Forum. SPH sends seven students to the annual Massachusetts Student Health Policy Forum, a two-day event held at the Massachusetts State House. The forum brings together public health graduate students and local government leaders with expertise in Medicaid, mental health, and public health policy. Students network with elected officials, leading state healthcare policymakers, 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 daylong Dean's Symposium held at the school, SPH and GE's healthymagination program brought together leaders from the 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 lead to healthier populations. The event was well attended by SPH students who asked questions and networked with the speakers.

Real World Public Health Cambridge. This annual daylong 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 student projects that create change through action. 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 five to eight projects are selected for funding annually; 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 Homeless Census sponsored by the City of Boston’s Neighborhood Development Department. 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, when appropriate, ask them survey questions that 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 medical and social services adjacent to SPH. The water squad seeks to create an environment of respect and dignity for the individuals accessing these services.

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 Place, a shelter for homeless women; the Pine Street Inn homeless shelter; the 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 Walk, Mother’s Day Walk for Peace, BARCC Walk for Change, AIDS Walk, and Walk for Hunger. Approximately five to 10 SPH students serve as lead volunteers for the university’s Alternative Spring Break program. Students in this program travel to perform service work for a week mentoring undergraduates to address issues such as environmental protection, 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 monthlong 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 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 that they want more daytime activities but attendance at daytime 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. This has helped, but the school continues to struggle with this ongoing challenge.

F3. Assessment of the Community's Professional Development Needs

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, biotech, 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 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., biotech, 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 10 essential public health services;
- The Local Public Health Institute (LPHI) of Massachusetts and School Health Initiative for Education and Leadership Development (SHIELD). Multiyear 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 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 professional organizations and associations such as the Massachusetts Coalition for Local Public Health, local boards of health (i.e., Arlington Health Department), and state agencies (i.e., Massachusetts Department of Public Health), the school 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.

The school uses multiple methods to assess the professional development needs of public health practitioners, communities, and agencies. Information gathering, both quantitative and qualitative, is ongoing and targeted to the population of interest. When possible, it meets multiple needs, also fulfilling a grant requirement or being built into an existing survey. Information gathered includes needed topic areas, skills, and tools, as well as information about logistical needs (i.e., training formats and locations). Needs assessment methods include surveys, focus groups, interviews, pre- and post-program assessments, and industry benchmarking. Faculty and staff serving on workforce boards, commissions, and advisory committees provide feedback to the school on workforce development issues and emerging trends in the field. These methods are designed to be as efficient as possible, combining efforts when possible, and have facilitated the expansion of professional development work beyond the traditional public health boundaries. This approach to assessment is reviewed annually by the Activist Lab and PHX.

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 group was designed to identify training needs of school health personnel, assess the state of SHIELD resources, and identify gaps in services that are necessary to enhance job performance of school health personnel.
- The 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 the 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 provides the 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: MHOA is the professional organization that represents health officers and directors at each of the 351 local boards of health and health departments in the Commonwealth. The SPH Director of Practice Programs is past president and an ex-officio member 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.

A few examples of the results gathered from these assessment tools and the resulting trainings are included as Table F3.2.1.

Table F3.2.1. Examples of Needs Assessments, Needs Identified, and Resulting Training

Needs Assessment	Need/training topic identified	Training/professional development opportunity offered (described in F4)
2010 Massachusetts Competency Report	Specific local public health program areas and cross-cutting competencies (i.e., housing inspection programs and management skills)	<ol style="list-style-type: none"> 1. On Your Time—a self-paced e-learning series 2. Managing Effectively in Today's Public Health Environment (a blended training) 3. MA PHIT Housing (a blended training)
2017 SHIELD focus groups and advisory committee	Foundational skills	Medication Administration in a School Setting: School Nursing Practice in Massachusetts (a blended training)
2017 Annual School Survey	Specific areas of competency development (e.g., epidemiology, biostatistics, data visualization, evaluation, etc.), and methods of delivery (i.e., online/in person)	<ol style="list-style-type: none"> 1. PHX short on campus programs in data visualization and monitoring & evaluation. 2. PHX short online program in Biostatistics.

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 twofold 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 this data makes data-sharing across the school challenging.

F4. Delivery of Professional Development Opportunities for the Workforce

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 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 10 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 offers scores of education/training courses and has 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

The school offers a variety of online training courses, both live and self-paced. **On Your Time** is LPHI's signature training 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 courses 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 at all times and may be audited or registered for a certificate of completion. When auditing, participants may easily access the training with no password required, but do not receive a certificate of completion. Each year, these trainings receive thousands of hits (6,485 in FY2016; 8,211 in FY2017; and 4,466 for the first half of FY2018). Registered participants who wish to receive a certificate complete a pre-test, a post-test, and an evaluation, and may be eligible for continuing education credit. On Your Time was recognized as a Model Practice by the National Association of County and City Health Officials in 2013.

PHX webinars were introduced in July 2017. Developed to provide an introduction to, and key insights on, population health topics, these free offerings are 60–90 minutes long, with half of the session in lecture format and half discussion between the presenter and audience. Led by subject matter experts, PHX held five webinars in FY2018 with a total number of 257 participants. A follow-up survey is sent to participants after the webinars to assess content and online experience and topic areas participants would like to see covered in future events. PHX has a goal of offering a webinar every other month during FY2019.

In-Person Instruction

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 in-person 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**. In addition, in 2016, a new Massachusetts law was passed that requires public schools to provide annual substance use screening and education for students at two different grade levels. 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 person, three of SPH's training centers have developed blended courses that combine in-person 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)
- [Systems Thinking](#)

The courses are rigorously evaluated, including at Kirkpatrick level 3, described below, which inform continuous quality improvement.

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 offered their own course focusing on Maine's practitioners. 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 Public Health Inspector Training](#): 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	FY2016 # Served	FY2017 # Served	FY2018 # Served
Online			
On Your Time Certificates	878	887	865
PHX webinars ⁴¹	–	–	257
In-Person			
Introductory Courses, SBIRT ⁴²	–	3,642	4,395
PHX Institutes ⁴³	–	130	127
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 ⁴⁴	–	In development	140
Systems Thinking	–	In development	65 (pilot)

⁴¹ PHX launched its first webinar in July 2017.

⁴² The school health institute moved to SPH in FY2017.

⁴³ PHX launched its first course in FY2017.

⁴⁴ The school health institute moved to SPH in FY2017.

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, in person, and blended, so they can be completed by working professionals where and when it is convenient for them, and using a method that best meets their learning needs. Most trainings are free or very moderately priced, frequently with discounts available for alumni or other target populations. In addition, many online offerings include an option to audit (free of charge) or complete for a certificate (modest fee). 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 includes 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. The school hopes to continue to build on this area of strength to non-public health professionals whose work could be enhanced by public health frameworks (e.g., engineers, architects, public planning professionals, etc.).

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 with the training sessions and their evaluators 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 needs of their public health audience and those of other industry groups (e.g., medicine, biotech, etc.) 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 need to be almost \$4,000 to cover expenses, 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, 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

1) A list of the school's self-defined, priority underrepresented 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 its **mission** as an academic public health institution, a mission firmly rooted in social justice. The school's commitment to diversity and inclusion strengthens its community while elevating the school's and partners' ability to eliminate health disparities locally, nationally, and globally. SPH maintains and celebrates this commitment through excellence and innovation in research, education, and service which explicitly include addressing the needs of underrepresented populations.

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, Chelsea, 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 underrepresented 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.⁴⁵ 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 underrepresented 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 of age.

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.

⁴⁵ City of Boston. New Bostonians Demographic Report. cityofboston.gov/newbostonians/pdfs/dem_report.pdf. Accessed November 23, 2015.

Table G1.1.1. SPH Students (n=1,061) and Comparison Populations Who Identify as Latino or African American

	SPH Students, Fall 2015 ⁴⁶	Greater Boston, 2010 ⁴⁷	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 (n=156) 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 underrepresented 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.

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%
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 it must improve its recruitment efforts for both 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. The school does not have significant challenges with the retention of underrepresented populations.

⁴⁶ The University Information System categorizes students as either international or by race/ethnicity for US citizens or Green Card holders. Therefore, student data does not include any international students who identify as African American/Black or Hispanic/Latino.

⁴⁷ 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). US Department of Education. Washington, DC: National Center for Education Statistics. Retrieved January 29, 2018 from <http://nces.ed.gov/pubsearch>.

Second, African American/Black faculty and Hispanic/Latino faculty have high five-year retention rates; SPH does not have difficulty in retaining these faculty. 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.

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 listed in Table G1.3.1. As detailed in SPH's December 2015 **11-point plan** and **Dean's note** titled "An Argument for Diversity and Inclusion in Public Health," 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%	<ul style="list-style-type: none"> A. Increase to 100% 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%	<ul style="list-style-type: none"> A. Increase to 100% 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%	<ul style="list-style-type: none"> A. Increase the number of faculty positions posted on listservs and professional organizations targeted toward African American/Black faculty and PhDs B. Leverage Dean's Fund to target URM faculty who represent "opportunity hires" C. Engage African American/Black faculty as visiting scholars
4. Increase proportion of Hispanic/Latino faculty to 2%	<ul style="list-style-type: none"> A. Increase the number of faculty positions posted on listservs and professional organizations targeted toward Hispanic/Latino faculty and PhDs B. Leverage Dean's Fund to target URM faculty who represent "opportunity hires" C. Engage Hispanic/Latino faculty as visiting scholars

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 seek to address immediate needs as well as create long-term sustained change.

- The Select Scholars program is an SPH effort, launched at the beginning of 2016, to partner with HBCUs, HISs, and other undergraduate institutions to enroll students interested in pursuing public health. Conceptualized as an “outward facing 4+1 program,” the program recruits 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, HISs, and the Annual Biomedical Research Conference for Minority Study (ABRCMS), and engage with the Gates Millennial Scholars program.
- In addition to efforts to secure 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 discussion 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 the 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.
- The Dean has made funds available for “opportunity hires.” Opportunity hires facilitate the hiring, in exceptional cases, of individuals whose availability and potential interest in Boston University School of Public Health are identified outside a normal search procedure. Importantly, hiring such candidates would advance the strategic initiatives of the School particularly with regard to their potential contributions to teaching, scholarship, and service, as well as, but not limited to, diversifying the faculty.
- 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 underrepresented populations with the Assistant Dean for Diversity and Inclusion at the initial search committee meeting.
- Boston University recently hired its first 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 anticipates 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.

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 interwoven, with opportunities for participation available to faculty and students, and are 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 include:

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 one or two 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 2016–2017 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 October 2017, the 2017–2018 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, in May 2017 Dr. Kermit Crawford led a faculty workshop titled, "Navigating Difficult Conversations," which 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 two-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 from 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 issues they will face as future public health practitioners, the school conducts two 90-minute sessions on race, class, and social justice as part of orientation. These sessions are opportunities for students to discuss their fears and concerns about approaching topics such as race and class during their academic programs. Content includes: (1) 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. Themes of race, class, and social justice are woven throughout the core curriculum in order to increase the examples of frameworks in various contexts about how these factors affect 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 lifecourse 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 across the Boston University campus to 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 programs and their 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 and alumni with a way to remain engaged with their school. The program leverages the SPH global alumni network to the end of improving the student experience at SPH and furthering SPH's commitment both to student development and alumni engagement. Mentoring is available to all students who wish to participate. Thirty students participated during the 2016–2017 academic year, and 22 students participated in 2017–2018.

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 supplement 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 Students 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](#).

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 toward 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 Hispanic/Latino students represent 7% and 9% of the student body, respectively. This represents a 1% decrease of African American/Black students and a 3% increase in Hispanic/Latino 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. 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); the 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); and the 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, host researchers during their sabbaticals from their home institutions, and send out 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%	82%	100%
	B. Increase proportion of MS and Doctoral Admissions Committee members who have completed bias training	Bias training	50%	68%	68%	100%
	C. Increase number of Emerging Scholars funding opportunities	Scholarship funds	4	5	4	≥10 scholarship awards
	D. Increase number of Select Scholars contracts with historically Black colleges and universities (HBCUs)	Select Scholars program	0	1	3	≥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%	82%	100%
	B. Increase proportion of MS and Doctoral Admissions Committee members who have completed bias training	Bias training	50%	68%	68%	100%
	C. Increase number of Emerging Scholars funding opportunities	Scholarship funds	1	1	2	≥3 scholarship awards
	D. Increase number of Select Scholars contracts with Hispanic-Serving Institutions (HSIs)	Select Scholars program	0	0	1	≥1 executed contracts
3. Increase proportion of African American/Black faculty to 8%	A. Increase proportion of faculty positions posted with organizations and listservs targeted toward African American/Black faculty	Publish to appropriate listservs	0%	0%	100%	100%

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	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	14	≥6
4. Increase proportion of Hispanic/Latino faculty to 2%	A. Increase proportion of faculty positions posted on listservs targeted toward Hispanics/Latinos	Publish to appropriate listservs	0%	0%	100%	100%
	B. Hire Hispanic/Latino faculty under "opportunity hires" program	SPH Dean's Fund to target URM "opportunity hires"	0	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	5	≥2

Table G1.5.2. Quantitative Data on Achieving Diversity Goals

	Baseline (2015)	Year 1 (2016)	Year 2 (2017)	Year 3 (2018)	Target (2018)
Number of students	1,103	1,110	1,080	1,155	–
Proportion African American/Black students	6%	7%	7%	6%	10%
Proportion Hispanic/Latino students	5%	6%	7%	8%	7%
Number of faculty	156	160	167	168	–
Proportion African American/Black faculty	3%	4%	3%	4%	8%
Proportion Hispanic/Latino faculty	1%	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 toward 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			
Number of respondents	382	413	216
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			
Number of respondents	154	158	53
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 foster 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, 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, 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."

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

SPH is dedicated to 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 toward 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, the Dean's Seminar Series, and the 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.

As indicated in criterion **H4**, members of the Admissions Committee and faculty from across the school attend admissions fairs at HBCUs, HSIs, and the annual meetings of national organizations which promote minority scholarships (e.g., Annual Biomedical Research Conference for Minority Study (ABRCMS), Gates Millennial Scholars program) and events that draw large URM student populations (e.g., Idealist Graduate School Fairs, CUNY pre-health undergraduate fair, State Schools). Additional activities include Hosting URM undergraduate groups on campus to meet with admissions and the Assistant Dean for Diversity and Inclusion along with faculty, staff, and current students, and the creation and implementation of the "emerging leaders" scholarship specifically designed to help recruit low-income URM candidates and provide up to a 50% tuition scholarship.

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 is taking a “surveillance” approach to identifying priority URM faculty candidates. Finally, Boston University recently hired its first Associate Provost for 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 anticipates that there will be increased resources available for URM recruitment and hiring.

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

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 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. In their first semester, MPH students are organized into cohorts of their peers who take core courses together and collaborate on projects. Cohorts include approximately 80 students each and allow students to get to know one another, share experiences and perspectives, and build their personal and professional networks.

All degree candidates are assigned a 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 functional certificate 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. 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 specialization, 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, and 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, which is also accessible to their academic advisor. Degree advice is an online tool that provides real-time delivery of academic advice through a web interface. Students and advisors can track academic program progress from matriculation through graduation, viewing complete and incomplete course and non-course requirements, the number of credits needed, as well as transferred course equivalencies. 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 to students in all degree programs. 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 master’s-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 (all degree programs) (School Survey, 198 respondents) were satisfied or very satisfied with academic advising in 2016–2017; and
- 52% of continuing students (all degree programs) (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 graduates’ (all degrees) 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, and degree program and graduation requirements	80%	71%
Refers me to other school/university-wide resources as appropriate	72%	66%
Discusses 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%
Is 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 and 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 and research to 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 so they can achieve 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 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 SPH community members are knowledgeable about and confident in specific program requirements. This could explain, in part, the drop in student satisfaction with advising in 2017–2018. In order to improve

advising, more program-specific training sessions and enhanced printed and online materials were developed and disseminated with details and web links of all program requirements, to clarify the role of academic advisors and professional advisors. Data was also collected from faculty, staff, and students on additional resources that might be beneficial for advising as part of the Dean's Task Force on Educational Programs and Faculty Teaching Opportunities. The Education Committee is now charged with reviewing and implementing the recommendations of the Task Force.

H2. Career Advising

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 and Practicum Office** offers comprehensive services to all SPH degree candidates and alumni.

Individual, in-depth career and practicum advising focusing on assessing career interests, providing information 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 résumés, marketing oneself (personal brand, elevator pitch, résumés, CVs, cover letters), creating a LinkedIn profile, and practicing how to network and interview. Career 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 résumé, cover letter, and LinkedIn drop-in hours offered four days a week.

The Career PREP (Prepare | Reach | Emerge | Propel) Program, a hallmark of the BU MPH, provides 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 presented by experienced career services professionals. It is delivered both in a classroom setting and in an online format to accommodate students with varying schedules. The six Career PREP modules cover 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 PREP course; however, it is not required. These students also have access to all other Career and Practicum Office offerings.

The Career and Practicum Office hosts more than 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 and teaching students how 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, and industry and career panels. The Career and Practicum Office also works with SPH faculty to bring employers into the classroom as speakers. The office offers more than 40 workshops during the academic year that focus on how to find a practicum, navigate the career fair, ace a case interview, negotiate a salary, and effectively build their networks.

A number of online career resources are available to students and alumni through the school's 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, and 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 three 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 practica 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 and Practicum Office has hired eight 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 actively sought URM candidates. Interviews are conducted with BU's Human Resources, 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 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), teamwork/collaboration, relationship building, and overall fit with the team.

New members of this office 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 the strategic plan for the Career and Practicum Office. New staff then receive in-depth training about the school, its programs and curricula, employer needs 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, orientation also includes tips for managing this dual role, discussions of key employers, and employer presentation materials. New staff shadow experienced Career and Practicum Office staff so they may better understand the SPH student population and advising approach. Once new staff 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 and Practicum Office hosts an annual SPH Career Fair open to all SPH students and alumni. Over the past three 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 visit, and to gain tips to approach representatives with a confident and concise "elevator" pitch to introduce themselves. The Career 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 and Practicum Office assumed responsibility for increasing and diversifying practicum opportunities for students. One of the most successful new undertakings 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 and Practicum Office also designed new programming to share 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.

Job market–driven career advising. Student advising is infused with relevant job market trends to ensure students are thoughtful and 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, knowledge, and attributes that employers are seeking, cross-sectoral changes, research funding updates, and more. As the ever-changing public health landscape has become complex for students and graduates to navigate, this specialized knowledge is critical for students as they plan for successful job searches and long-term career planning. Students are considering a wide range of career options in the field of public health, including local/state/federal government agencies, community-based organizations and NGOs, hospitals and health providers, and, increasingly, in the private sector. For example, an increased number of public health candidates are considering careers in the field of consulting. Seeing an increased interest in this area, the Career 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 includes “Careers in Consulting” presentations, “Ace the Case Interview” workshops, and individual mock case interviews. Faculty collaborate with the Career and Practicum Office by promoting these services to students and facilitating some of these workshops. In 2017, 15% of graduates secured positions at consulting firms.

Alumni. SPH alumni receive services throughout their professional lives, and the more than 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 and Practicum Office provided services to approximately 880 alumni annually, typically involving multiple meetings and communications with each alumnus/alumna. The office has worked extensively with alumni immediately upon completion of their degree, and has seen an uptick of alumni returning for services within one or two years of their graduation as they search for their second position. The Career 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 résumés, 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 and Practicum Office for career advising focused on navigating difficult work situations, moving into more senior-level roles, negotiating salary increases, and navigating 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. Use of Career Advising Services

Career Advising Service	2015–2016	2016–2017	2017–2018
Career Fair	300	319	405
Practicum Expo	120	159	197
Practicum programming	120	146	307
Market-driven advising	700	770	900
Consulting and case interview workshops	146	183	163
Alumni advising	820	880	960

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 (master's students), annual School Survey (all degrees), and Post-Graduate Employment Survey (all degrees).⁴⁸ 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 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 PREP 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 indicated 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 résumé and 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, 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 résumé 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

⁴⁸ The Graduate Exit Survey, which was last administered in 2015, was completed by master's (MPH, MA, and MS) students. The School Survey replaced the Graduate Exit Survey in 2015, and is completed by students in all degree programs. The Post-Graduate Employment Survey is sent out six months after graduation to graduates of all SPH degree programs.

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 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 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 and Practicum Office staff (full-service career advising, professionalism, networking, and placement assistance). The Career 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 in major cities across the United States to identify additional career opportunities.

H3. Student Complaint Procedures

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 have the right to be heard fairly and promptly. Students may do this through a variety of methods depending on the nature of the complaint: 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 usually 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 for students, faculty, and staff, and directly reports 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 a relevant faculty member 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 relevant 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 the final grade 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 course requirements as documented in the course syllabus. The student was offered and completed an additional assignment which was consistent with opportunities offered to the entire class 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 granted an extension to a deadline 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 with new deadlines. The

student was able to complete the planned schedule, submit missing assignments, and receive a satisfactory grade.

April 2017 – A student reported that a fellow classmate sent an offensive and racist email to a class group specifically aimed at one member of the group. The offensive email was in retaliation to a heated discussion among the team members that occurred in class. One of the team members (not the one being attacked) then forwarded the email to the professor of the class to report the incident, and the professor reported the incident to the Director of Graduate Student Life. The Director immediately informed the Associate Dean for Education of the situation and met with the student who sent the email. Meanwhile the professor met with the concerned team members and together they decided that the group should move on and work without the student who sent the offensive email. Following this resolution, the student named in the email did not wish to pursue the matter, but the Director and Associate Dean met with the student who sent the email. The email author was informed that the reported behavior within the group and email was grossly inappropriate and that they violated the university's Academic Code of Conduct which requires respectful behavior. The student understood the serious nature of the situation and assured the administration that this behavior would not be repeated. 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 was documented in the student's record and could be used as a grounds for dismissal if the behavior is repeated.

May 2017 – A student reported to the Director of Graduate Student Life that she was dissatisfied with a low grade 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 in an SPH administrative office capacity. The female student expressed to her supervisor that she was uneasy working with the male individual and explained the incident from earlier that summer in her practicum. 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. As part of the sanction from Judicial Affairs, the male student was assigned to meet with a Behavioral Medicine clinician to be counseled on the incident and how to adhere to the guidelines of the stay away order. The male student and counselor engaged in multiple sessions to discuss the incident, why the behavior was unacceptable, and how the student might refrain from such actions in the future. The sanctions also stipulated that the male student have restricted access to the building where the female student worked during her scheduled hours and the male student was ordered not to attend events at the school when the female student was present. The male student was also instructed to distance himself as far away as possible when they were in classes together. The students shared two classes in the Fall 2017 semester, and no issues were reported. The male student has adhered to the requirements of the stay away order, an order which will continue until both students have graduated from SPH.

November 2017 – A student emailed the Associate Dean for Education disputing a grade on a core course paper. The Associate Dean met with the student to understand their concerns and then discussed the issue with the faculty member. The student, faculty member, and Associate Dean then met to discuss

the situation together. During the meeting, the faculty member clarified the expectations of the assignment, specifically the writing style required. The student was a good creative writer but was struggling with public health writing. The student understood why the assignment was graded as it was, and the grade was not modified.

April 2018 – A student emailed the Associate Dean for Education about a team project grade in a core course. One student made the inquiry on behalf of the team. This student claimed that their team was graded more harshly than others in the class. The Associate Dean spoke to the faculty member about the details, and the group's grade was consistent with the rubric. The Associate Dean relayed this to the student, and the grade was not modified.

May 2018 – a student conducting a directed study with the Associate Dean for Education contacted the Dean expressing frustration with her final grade. The Dean reviewed the requirements of the directed study and the final graded project and determined that the grade was appropriate. The grade was not modified.

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 levels if they wish 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

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 United States and internationally.
- Local employer recruitment (MPH and certificate focus): In collaboration with the Career 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 conduct on-site recruitment activities 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 on 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 who are historically black or Hispanic serving, or whose mission aligns with the SPH mission to recruit highly qualified undergraduates.
 - The Preferred Partners Program forms partnerships with select local employers to support and recruit public health professionals with two or more 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 with other schools at 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 six to eight information sessions on campus. Staff are available to meet individually 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) to apply the standards for admission, approve changes to application materials used in the selection process, and review 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 review all completed applications for admission, contributing to the discussion of applicants using a holistic review process that takes into consideration academic achievements, life and professional experiences, and goals and aspirations for their future in public health. Faculty also vote 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 it by SOPHAS, SOPHAS Express, or HAMPCAS. Once all application requirements have been met, 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.

- Percentage of designated group (e.g., undergraduate students, mid-career professionals, multilingual individuals) accepting offers of admission

(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
First-Generation Undergraduate Applications	12%	12%	14%	16%
First-Generation Undergraduate Acceptances	12%	11%	13%	15%
First-Generation Undergraduate New Students (Yield)	15%	11%	13%	17%

Outcome Measure	Target	Year 1 2016	Year 2 2017	Year 3 2018
First-Generation Graduate Applications	30%	31%	36%	38%
First-Generation Graduate Acceptances	30%	29%	35%	33%
First-Generation Graduate New Students (Yield)	30%	27%	40%	35%

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 schoolwide efforts at SPH. Faculty, staff, current students, and alumni help build messaging and participate in recruitment, yield, and retention efforts. Particularly strong partnerships among the Admissions Office and Development and Alumni Relations, Population Health Exchange (PHX), our Office of Lifelong Learning, the Career 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 its efforts to meet this demand. For example, the admissions team now conducts group visits rather than individual, fully customized visits for prospective applicants. This change, which seeks efficiencies while remaining responsive to applicants, has been a culture shift, 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.

H5. Publication of Educational Offerings

1) Provide links to information and descriptions of all degree programs and concentrations in the unit of accreditation. The information must describe: 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.