



College of Health & Rehabilitation Sciences: Sargent College

UNDERGRADUATE STUDENT MANUAL

FOR

HUMAN PHYSIOLOGY

2009-2010

Revised: September, 2009 (JLS)

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I. INTRODUCTION TO SARGENT COLLEGE, BOSTON UNIVERSITY

Sargent College of Health and Rehabilitation Sciences became part of Boston University in 1929. It was originally founded as a School of Physical Training in Cambridge, Massachusetts by Dr. Dudley Allen Sargent in 1881. Dr. Sargent built an international reputation as an innovator in health promotion and physical conditioning. With the expansion of knowledge about health and the increase in complexity of society's health care needs, Sargent College continuously improves our degree programs to meet the needs of future professionals in health fields.

Academic Programs

Undergraduate programs include Athletic Training, Health Science, Health Studies (undergraduate portion of the Doctor in Physical Therapy program), Human Physiology (pre-med), Dietetics, Nutritional Science (pre-med), Speech, Language and Hearing Sciences, and Therapeutic Studies (undergraduate portion of the Occupational Therapy program). Graduate programs are offered in Applied Anatomy and Physiology, Nutrition, Audiology, Occupational Therapy, Physical Therapy, Rehabilitation Counseling, Rehabilitation Sciences and Speech-Language Pathology.

Scope of the Program Manual

Information in this manual is not intended to be fully comprehensive. The student should also refer to policies, data, or listings that are found in:

- Sargent College Graduate or Undergraduate Bulletins
- Academic Conduct Code
- The Boston University or Sargent College Websites

While every effort is made to keep all of these sources accurate, up-to-date and in agreement with one another, occasional discrepancies may occur and will be resolved by consultation with your Program Director.

Mission of Sargent College

The mission of Boston University Sargent College is to advance, preserve, disseminate, and apply knowledge in the health and rehabilitation sciences. BU Sargent College strives to create an environment that fosters critical and innovative thinking to best serve the health care needs of society.

II. INTRODUCTION TO THE DEPARTMENT OF HEALTH SCIENCES PROGRAM IN HUMAN PHYSIOLOGY

The Human Physiology Program in the Department of Health Sciences has prepared many students for successful admission to professional health care programs. For those individuals seeking a career in one of the health care professions, including medical school, and who have a strong interest in the sciences, the Human Physiology major provides an alternative to the traditional biology degree. With its focus on the study of human biology, a major in Human Physiology expands upon the required premedical requirements (listed below) with the addition of classes such as gross human anatomy, exercise physiology, neuroanatomy and neurophysiology, and cardiopulmonary pathophysiology. Breadth of academic preparation is insured by elective distribution requirements in the humanities and social sciences.

Health career schools prefer students who display a variety of interests with the quality and scope geared to meet the admission requirements of one's institutional choice. Above all, admission will depend upon academic achievement, unique interest and skills, clinical experiences, and letters of recommendation. In addition, medical schools require that all applicants complete the minimally required premedical courses (see Appendix II).

Many of the faculty in the Health Science Department hold joint appointments with various departments in the School of Medicine and have extensive research laboratories where students can gain insights regarding medical research programs in specialized areas. The department has extensive collaborative research relationships with various universities, hospitals and industrial research laboratories both in the greater Boston area and the surrounding New England states.

Each student in the department is assigned an academic/career advisor who works closely with the student in career planning, course selection and determining the professional school best suited for their particular health career.

III. FULL-TIME FACULTY IN HUMAN PHYSIOLOGY

Faculty and Areas of Specialization

Helen Barbas, Ph.D. Ph: 617-353-5036, barbas@bu.edu , Office: Sargent - Rm 431	McGill University, Canada; <i>Professor</i> , Neuroscience, organization of prefrontal cortex.
Jason Bohland, Ph.D. PH: 617-353-9168, jbohland@bu.edu Office: Sargent – Rm 403	Boston University; <i>Assistant Professor</i> , Quantitative studies of brain architecture, neuroimaging, and informatics
Mahasweta Girgenrath, Ph.D. Ph: 617-353- 2739, swetag@bu.edu Office: Sargent – Rm 425	Northeastern University; <i>Assistant Professor</i> , Role of apoptotic proteins and signal transduction pathways in neuromuscular disease
Susan Kandarian, Ph.D. Ph: 617-353-5169, skandar@bu.edu Office: Sargent – Rm 423	The University of Michigan; <i>Professor</i> , Muscle physiology, molecular mechanisms of gene expression in muscle.
Kathleen G. Morgan Ph: 617-353- 7464, kmorgan@bu.edu Office: Sargent – Rm 443B	University of Cincinnati, <i>Professor and Chairman</i> , Cardiovascular cell biology and cytoskeleton
Judith L. Schotland, Ph.D. Ph: 617-353-8449, schotlnd@bu.edu Office: Sargent – Rm 427	Northwestern University, <i>Clinical Associate Professor</i> : Program Director, Human Physiology and Applied Anatomy & Physiology; Neuroscience, spinal neural networks and organization of movement.

IV. ETHICAL STANDARDS AND POLICIES OF SARGENT COLLEGE OF HEALTH AND REHABILITATION SCIENCES; PETITIONS, APPEALS

Sargent College has a commitment to excellence in the education of Health and Rehabilitation Professionals. Individually and collectively, those associated with Sargent are responsible for maintaining and promoting those ethical standards below:

A. Responsibility of the College to Students:

1. In the process of recruiting students, the College and its program should be represented accurately.
2. The admissions procedures should indicate a fair and impartial review of student's credentials.
3. A learning environment should be provided which is safe and conducive to learning.
4. The curriculum should be consistent with the best practices, philosophies, and patterns within the allied health professions.
5. The College and its programs should attempt to respond to changing patterns and concepts in the process of educating allied health professionals.
6. The faculty should be competent educators in their respective field.
7. Procedures used to evaluate students should be fair and clearly presented to the students at the beginning of each course and throughout the program.
8. Grievance and appeals procedures for students should exist and be clearly presented to students.
9. The College should make every effort to ensure that the students will be competent in their professional areas at the completion of their program requirements.

B. Responsibility of the College to Consumers of Health Care Services

1. The College should make every effort to ensure that each graduate of the college should be competent for service in his or her respective profession.
2. The College should emphasize through its instruction that the graduates of the college should respect the dignity and privacy of each individual with whom they come in contact in a professional setting.

C. Professional Behavior Statement

The mission of Sargent College is to advance, preserve, disseminate, and apply knowledge in the health and rehabilitation sciences. Sargent College strives to create an environment that fosters critical and innovative thinking to best serve the health care needs of society. This environment is made possible only through full participation of all members of the Sargent College community. A key expectation of this community of scholars, educators, practitioners and students is the adherence to the highest standards of professional and ethical behavior.

Academic performance is only one indicator of success for Sargent College students. Students are expected to demonstrate professional behavior, to accept responsibility for their actions, and to expect the same from their peers. Professional behavior is expected across environments, whether the student is engaged in clinical practice, classroom instruction, peer or faculty interaction, and research or laboratory activities. Students are expected to know and comply with the specified rules for each of their academic and clinical experiences.

Students are evaluated on professional behavior in addition to academic performance. Failure to meet the standards for professional behavior may result in dismissal from the program. The specific responsibilities of students are outlined in the manual for each program of study.

D. Academic Honesty

Sargent College of Health and Rehabilitation Sciences is committed to creating an intellectual community in which both faculty and students participate in the free and uncompromising pursuit of learning. This is possible only in an atmosphere of mutual trust where the discovery and communication of truth are marked by scrupulous, unqualified honesty. The college expects all students to adhere strictly to the accepted norms of intellectual honesty in their academic and clinical work. It is the responsibility of the student to abide by the Sargent College Academic Conduct Code that is distributed annually to each student at the college. Copies are available in the Academic Services Center (Room 207).

E. Absence for Religious Reasons

1) According to Chapter 151C of the General Laws, Commonwealth of Massachusetts, any student in an educational or vocational training institution, other than a religious or denominational educational or vocational training institution, who is unable, because of his or her religious beliefs, to attend classes or to participate in any examination, study, or work requirements on a particular day, shall be excused from any such examination or study or work requirement, and shall be provided with an opportunity to make up such examination, study, or work requirement that may have been missed because of such absence on any particular day; provided, however, that such makeup examination or work shall not create an unreasonable burden upon such school. No fees of any kind shall be charged by the institution for making available to the said students such opportunity. No adverse or prejudicial effects shall result to students because of their availing themselves of the provisions of this section.

2) Students are asked to identify potential schedule conflicts with religious observances (class attendance, exams, assignment due dates) within the first week of receiving the course syllabus and to communicate these to the course instructor. This will enable the course instructor to work with the student to set alternative due dates or exam dates and to identify appropriate methods well in advance for the student to obtain information that may be missed from class.

F. Disability Accommodations (also on the BU Website)

Boston University provides reasonable accommodations to eligible individuals with disabilities in conformance with Section 504 of the Rehabilitation Act of 1973 and with the Americans with Disabilities Act of 1990. Requests for disability accommodations must be made in a timely fashion to the Office of Disability Services, 19 Deerfield Street, Boston, MA 02215; 617-353-3658 (Voice/TTY). Students seeking accommodations must submit appropriate medical documentation and comply with the policies and procedures of the Office of Disability Services.

Please see also, <http://www.bu.edu/disability/policy/policyindex.htm>

G. Graduation

All students must fill out an application for Graduation after they meet with their advisors to certify that all degree requirements are met. The application for Graduation must be signed by your advisor and returned to the Academic Services Center (ASC - Room 207). It is essential that this form be submitted by February 1st of your last year of study to ensure that your name is included in the May graduation list and commencement programs.

All students (January, May and September grads) are invited to participate in the May commencement ceremony if they have completed all coursework by that date. Commencement materials will be sent by email and postal mail so please be sure that BU has your updated contact information. Check the Sargent College and Boston University websites for important details about the ceremonies or stop by the Academic Services Center (Room 207) if you have any questions.

H. Double Majors Within Sargent College

Currently, students can pursue two undergraduate degrees in separate schools through the Boston University Collaborative Degree Program (BUCOP) or double majors within a school. Some general policy considerations for double majors within Sargent College:

- Students must meet all requirements in both programs including GPA, all coursework (major and elective) and internships where applicable.
- Both degrees must be completed before the student can graduate from Boston University.
- Students must complete no fewer than 36 courses (144 credits) for a double major.
- To apply, students must complete their freshman year with a grade point average of 3.0 or higher. Applications can be made during the first or second semester of the sophomore year or by the first semester of the junior year (at least three semesters of enrollment are required).
- Students must meet with Deborah Claar, Academic Counselor (Room 201). She also serves as the BUCOP and SAR Double Majors coordinator. All paperwork is processed through her.
- The application will then be reviewed by academic advisors who have knowledge of both programs.
- As part of the application, an essay (one-page, typed) must be submitted that describes why the double major is academically beneficial.

I. Freshman Program Changes and Transfers

Freshmen who wish to change programs during their fall semester at Boston University must first meet with Heather Nicholson to discuss the requirements of the target program. Because it is very helpful for everyone involved in the decision-making process to have the first semester grades for freshmen, the following guidelines are proposed.

- Freshmen who have been admitted into a specific program may transfer into new programs only after a full semester at BU.
- Freshmen who have been admitted into the Undeclared program can declare a major only after they have completed a full semester at Boston University.
- Students who become interested in changing majors during the fall semester will be encouraged to register for spring semester coursework in the target major rather than the admitted major.
- Students who have not yet met the transfer requirements will still be allowed to take crucial freshman spring courses (for example, AT 205) so that they don't fall behind in the curriculum requirements.

Any time after the fall of freshmen year, students who decide to change programs or transfer into Sargent College, BU may begin the process by meeting with one of the academic counselors, H. Nicholson (inside SAR transfers) or D. Claar (intra-university and outside BU transfers). The following actions are possible:

- An academic counselor or program director may recommend supplementary coursework that would help the student to succeed in their target major. This recommended coursework must be completed before the student will be allowed to apply to the target program.
- At his/her discretion, the program director may counsel that the student is unlikely to succeed in the target major and therefore permission to transfer will not be given.
- A student who meets the GPA and all other guidelines will be officially admitted to their new chosen program after all of the paperwork has been completed.
- Students who do not meet the GPA requirements of the target program, must remain in their admitted program until their grades are suitable for the new program and then reapply. Please note that, transferring into a new major may prolong the time it takes to complete the degree requirements.
- Students are expected to complete a minimum of three semesters in a Sargent College major prior to graduation.

J. Dean's List

Full-time students are named to the Dean's List for excellence of scholarship upon achieving a grade point index of 3.5 in any one semester with no incomplete grades. At least 12 credits of coursework with letter grades (not pass/fail) are needed for a student to be eligible for the Dean's list.

K. Academic Probation

Any student whose grade point index is below a 2.0 will be placed on academic probation and will be notified by Sargent College. To remove the probationary status from the academic record, a student must achieve a 2.0 GPI in the following semester.

Any student who has two consecutive semesters of a GPI below a 2.0 will be academically dismissed from the College and will be allowed a transitional semester as an undeclared student to raise their GPA to transfer to another college within the University or elsewhere. If, at the end of the transitional semester, they are unable to successfully transfer, they will be dismissed from the University. The academic probation policies include coursework completed during summer term at Boston University. Students can make an appointment with an academic counselor in the Academic Services Center (Room 207) at (617) 353-2713 to discuss their status.

No student on probation may hold office in any college or university organization, participate in any intercollegiate event or program, including athletics, or otherwise represent the university or college. A student on probation is not excluded from membership in a student organization. A student on probation may be ineligible to receive any financial aid from the university or college.

A letter is sent to each student informing him/her of academic probation status. Copies of this letter are sent to the faculty advisor and parents, and it is recorded at the Registrar's Office on the University Record System. Students on probation are encouraged to seek advice from an academic counselor at the college.

L. Termination of Enrollment for Academic Reasons and Appeal Process

A student is permitted only two consecutive semesters of a GPI below a 2.0. Termination of matriculation within the college shall occur for any student at the end of the second semester of unsatisfactory work but a transitional semester will be granted as stated above. This decision can be appealed and a formal petition can be submitted to the College Academic Policies and Procedures Committee by contacting the Academic Services Center (Room 207).

M. Action Taken Outside Sargent College

Matters relating to a course taken by a student in a school or college other than the one in which the student is enrolled are subject to the determination of the school or college in which the course is offered. Disciplinary or academic actions against a Sargent student by other segments of the University will be reviewed by SAR/CAPP. SAR/CAPP will then recommend its decision to the Dean of Sargent College.

N. Attendance (also on the BU website)

Students are expected to attend each class session unless they have a valid reason for being absent. Students may be required at any time to account for undue irregularity in attendance, either by personal explanation to their faculty advisor or dean or by written statement from a parent or another authority. Any student who has been excessively absent from a course may be required to withdraw from that course without credit. Students who expect to be absent from class for more than five days should notify their dean promptly.

O. Suspension or Dismissal (also on the BU website)

Boston University, through its various faculties and appropriate committees, reserves the right to suspend or dismiss any student for failure to maintain a satisfactory academic record, acceptable personal behavior, or satisfactory standards of health. Copies of Boston University's Code of Student Responsibilities are available from the Office of the Dean of Students, East Tower, George Sherman Union, 775 Commonwealth Avenue, Boston, MA 02215.

Students absent from classes more than two days for illness should be under a doctor's care. Students who are absent five days or more for illness should present to Student Health Services a certificate of fitness from their physician or be examined at the University Clinic.

P. Intra-University Minors

1) Minors available within the College of Arts and Sciences (CAS):

African Languages and Literature	German
African Studies	Geography
African American Studies	Greek Language and Literature
American Studies	Hebrew
Ancient Greek	History
Anthropology	Latin American Studies
Archaeology	Linguistics
Art History	Mathematics
Astronomy	Medieval Studies
Biology	Modern Greek Studies
Chemistry	Philosophy
Chinese	Physics
Classical Civilization	Political Science
Computer Science	Psychology
Earth Sciences	Public Health
East Asian Studies	Religion
Economics	Russian
English	Russian and Eastern European Studies
Environmental Analysis and Policy	Sociology
Environmental Science	Spanish
European Literature	Statistics
French	Women's Studies

2) Minors available within School of Fine Arts (SFA)

Dance
Music
Theatre Arts
Visual Arts

3) Minor available within School of Management (SMG)

Business Administration

5) Minors available within Sargent College.

Human Physiology
Speech, Language and Hearing Sciences

Q. Sargent College - Degree Requirements

Sargent College requires a minimum of 48 credits be taken at Boston University to fulfill requirements for graduation. Individual departments may require more.

Sargent College baccalaureate degree requirements must be completed within eight years of the initial date of matriculation at Boston University.

All Sargent College students are required to complete a college-level English composition course effective for students entering Fall 2000. Advanced placement units and/or exemption by SAT scores may not be used to meet this requirement.

All students wishing to take a course Pass/Fail, which is regularly a graded course, must petition the instructor within the first two weeks of the semester and the student's department advisor must also sign the petition.

No incomplete grades will be reported unless the instructor and the student have conferred, the student has presented a sufficient reason why the work of a course cannot be completed on schedule, and the instructor has assigned a date within the succeeding twelve months by which time all course requirements must be completed. No degree credit for incomplete courses will be granted unless the work is completed by the date assigned, which must be no later than one calendar year of the date on which the incomplete date is reported. In the event that coursework remains incomplete on the assigned date or twelve months after the I grade has been awarded, whichever comes first, the I grade will be changed automatically and permanently to an F grade.

V. ACADEMIC POLICIES, STANDARDS, AND REQUIREMENTS SPECIFIC TO: Program in Human Physiology

A. Program in Human Physiology

1. A cumulative G.P.A. of 2.0 must be maintained to remain in good academic standing.
2. An overall G.P.A. of 2.0 is needed to transfer into the junior year, to enroll for an undergraduate affiliation (internship), and to graduate.
3. No more than 12 credits of D grades (three 4 credit courses) will be allowed in the course of study. Each student's respective advisor will determine what course, in case of a fourth D, would be retaken.
4. Students taking courses outside Boston University must achieve a grade of C or above in order to receive credit from the college.
5. An application for graduation must be completed one semester prior to graduation and can be obtained from the SAR Academic Services Center (ASC).
6. It is the student's responsibility to become familiar with all policies and procedures concerning academic standing, course requirements, and graduation.

B. Deviations from Program Course Requirements

The student may petition the Human Physiology faculty for waiver or substitution of program requirements. Petitions should be submitted to the student's academic advisor and be accompanied by information (e.g. course outlines, transcripts, exams, etc.) which will support the proposed change.

Requests for variance from the usual academic or curricular requirements, to include:

- Transfer of credit from another college or university
 - Waiver of a course based upon prior coursework or experience, to include permission for competency testing
 - Course substitution or the determination of course equivalence
 - Waiver of department course prerequisite or corequisite
 - Waiver of academic standard
1. The advisor, at her/his discretion, may act on petitions seeking: i) course transfer, ii) course waiver, iii) course substitution. When relevant, concurrence with the involved course instructor(s) is required.
 2. The Program faculty will always receive directly from the advisor any petitions having to do with waiver of an academic requirement, or any variances whose approval would be precedent-setting or defacto policy formation and will consider such petitions and present its recommendation to the faculty for vote.
 3. Petitions will be signed by the advisor or delegate. This may be the advisor, the program director, or the chairperson of the Health Sciences Department.
 4. All petitions and any supporting documents, whether approved or denied, will be filed in the student's permanent College record.

Students who seek a variance of departmental policy or regulation or who have a grievance with an instructor or a departmental judgment must attempt to resolve the situation in the department with the individual instructor, the department chairman or by petition to the department academic standards committee.

If the student is not satisfied with the reconsideration of the department as outlined, the student may petition the Committee on Academic Policies and Procedures. The purpose of the Sargent (SAR/CAPP) Committee is to assure that the standards set by the college at large and academic policies set by the faculty of individual programs are consistently applied in a non-prejudicial and non-discriminatory manner. Therefore, SAR/CAPP will consider petitions that involve academic standards and policies if students have pertinent additional information not previously presented; if there are extenuating circumstances that justify deviation from, or exception to, stated rules; or if students feel that the departmental committee or a faculty member has not dealt with them in a fair manner.

Petitions to SAR/CAPP to reconsider academic or disciplinary actions against a student must be submitted for such consideration no later than two weeks after the student has been notified of the departmental action. SAR/CAPP will inform the student of the scheduled hearing date. The student will be requested to submit all pertinent materials to the Committee in advance of the hearing. The student has the right to present his/her case in person if so desired. The Committee may request the attendance of other individuals who may speak to the issue(s) under consideration. A verbatim transcript of the hearing may be requested by the Committee and will be made available to the student upon request. The student will be notified of the Committee's findings in writing within five days after the hearing.

If the student is not satisfied with the decision of SAR/CAPP, the student may petition the dean of the college for reconsideration. All academic conduct and standards cases are subject to the review and final determination, including determination of sanction, by the provost of Boston University or his or her designated representative.

Any student terminated from a department within Sargent College for disciplinary reasons is automatically terminated from the college.

Students may petition SAR/CAPP to consider non-academic issues such as charges of discrimination or sexual harassment by faculty, staff or students. Students are urged to seek redress within the appropriate department(s) whenever possible, but SAR/CAPP will hear unresolved issues, or those, which might cross departmental lines. As in all cases, due process as described by the Boston University Code of Student Responsibilities will be followed.

VI. UNDERGRADUATE CURRICULUM

Curriculum Outline - HUMAN PHYSIOLOGY

Name: _____ ID#: _____ Advisor: _____

Address (local): _____ Telephone: (_____) _____

Permanent Address: _____ Telephone: (_____) _____

Course		Credits	Grade	Substitute	Advisor
FRESHMAN YEAR					
First Semester					
CAS BI 107	Biology I	4			
CAS CH 101	General Chemistry	4			
CAS WR 100	Writing Seminar	4			
SAR HP 151	Introduction to Health & Rehabilitation Sciences	2			
PDP	Activity	2			
SAR HP 150	Freshman Experience Seminar	0			
		16			
Second Semester					
CAS BI 108	Biology II	4			
CAS CH 102	General Chemistry	4			
CAS PS 101	General Psychology	4			
CAS WR 150	Writing	4			
		16			
SOPHOMORE YEAR					
First Semester					
CAS CH 203	Organic Chemistry	4			
CAS BI 203	Cell Biology	4			
CAS MA 121	Calculus	4			
CAS HU XXX	Humanities Elective*	4			
		16			
Second Semester					
CAS CH 204	Organic Chemistry	4			
CAS BI 315	Systems Physiology	4			
CAS MA 122	Calculus	4			
CAS SS XXX	Social Science Elective*	4			
		16			

*The Boston University catalog for Undergraduate Programs (2009-2010) lists various courses that may be taken to fulfill Social Science and Humanities Electives.

Course		Credits	Grade	Substitute	Advisor
JUNIOR YEAR					
First Semester					
CAS CH 421*	Biochemistry or Principles of Biochemistry* (CH 273)	4			
CAS PY 105	Elementary Physics	4			
CAS HU XXX	Humanities Elective	4			
PS 211 or MA 113	Statistics	4			
		16			
Second Semester					
SAR HS 342	Exercise Physiology	4			
CAS PY 106	Elementary Physics	4			
CAS SS XXX	Social Science Elective	4			
	Humanities Elective	4			
		16			
SENIOR YEAR					
First Semester					
SAR HS 251	Human Nutrition Science	4			
SAR HS 369	Gross Human Anatomy	4			
SAR HS 375	Cardiopulmonary Pathophysiology	4			
	General Elective	4			
		16			
Second Semester					
SAR HS 370	Neuroanatomy and Neurophysiology	4			
SAR HS 410+	Internship: Human Physiology	8			
	General elective	4			
		16			
	Total	128			

Shading = Lab Courses

TOTAL CREDITS FOR HUMAN PHYSIOLOGY = 128

* For students planning to apply to medical school, the Department recommends taking the biochemistry sequence CAS CH 421 and 422 but CAS CH 273 is acceptable. CAS CH 422 Biochemistry II may be taken as a general elective in the Second Semester, Senior Year. Human Physiology students wishing to pursue a chemistry minor may only use two of the chemistry courses required for the HP major toward this minor.

JS 6/2009

+ The clinical site administrator will coordinate internships.

APPENDIX I: SARGENT COLLEGE STANDARD OPERATING PROCEDURES FOR LABORATORIES

(Taken from the Boston University documents, Chemical Hygiene Plan and Chemical Hygiene Officer's Handbook)

Student's Responsibilities:

1. Read and become thoroughly familiar with these procedures.
2. Notify the teaching Assistant of any spills or accidents or near accidents.
3. Become familiar with the use and location of emergency equipment and facilities such as showers, eyewashes, fire extinguishers, fire blankets, fire alarms, first aid kits, chemical spill control agents and emergency exits.
4. Always use adequate eye protection, protective clothing, and gloves in the laboratory. Details on protective garb are given below for specific classes.
5. Always wash up when finished working with chemicals. Use soap and water and be sure to wash hands and arms thoroughly even when gloves have been worn.
6. Never work alone without explicit permission from the instructor.
7. Never perform unauthorized experiments or preparations.
8. Never eat, drink, smoke or apply cosmetics in laboratory.
9. Never engage in horseplay, pranks or other acts of mischief in the laboratory.
10. Never leave exposed needles or micropipettes on the bench or in washing facilities.
11. Clearly label any containers of any substance.
12. Remove barrier protection (gloves, lab coats and aprons, eye protection) before leaving the laboratory. Potentially contaminated equipment must be kept where it will pose no threat to other persons.
13. Decontaminate, clean or sanitize personal protective equipment on a regular basis.
14. Discard used chemicals, equipment, and any other hazardous-infectious waste as defined below.

Personal Protective Equipment

Eye Protection.

All students must wear safety glasses in any laboratory where hazardous chemicals are used. This includes Gross Anatomy and Neuroanatomy laboratories. Wearing of contact lenses in the laboratory is not recommended. Students may wear prescription eyewear or any safety glasses with splash guards.

Protective clothing.

Lab coats must be worn in laboratories with hazardous chemicals present and in Gross Anatomy. Students may provide their own or they may borrow coats in the lab. Lab aprons must be worn over lab coats by instructors and students in Regional Gross Anatomy. The lab coat and shoes should provide protection for legs and feet. Perforated or open shoes and sandals are not sufficient protection. Cutoffs and shorts are inappropriate.

Gloves.

Gloves must be worn in all laboratories. In Neuroanatomy lab, gloves will be supplied. For Gross Anatomy labs, students must purchase 4 mil nitrile gloves (\$1/pair) or they may purchase them by the box from the Medical School. Nitrile gloves must be short-term protection from chemicals and biological tissue and waste. Most organic chemicals will eventually penetrate virtually any glove. Contaminated gloves must not be reused.

Hazardous Waste Disposal

Solids: Biological waste and contaminated gloves and protective clothing is to be deposited into receptacles designed for that purpose. Usually these receptacles have red plastic liners. If you are unsure where these containers are located, it is critical that you ask the lab instructor. Sharp objects such as needles and scalpels are to be deposited in the red hard plastic containers designated for this purpose. Disposal of hazardous chemicals will be explained by the laboratory supervisor (refer to the Boston University Chemical Hygiene Plan).

Liquids: When gloved hands or instruments are contaminated with human waste or specific chemicals, use the sinks that are designated for rinsing and cleaning these items. Items not contaminated may be washed using "clean" sinks.

Visitors

There are to be no visitors in any laboratory except those who come for educational or professional purposes. These visitors must wear appropriate eye and protective clothing. Minors under the age of 18 are not permitted to spend time in laboratories where chemicals are used or stored.

Emergency Procedures

Any laboratory accident must be reported to the laboratory instructor immediately. Take directions from the instructor and be familiar with the procedures listed below.

FIRE: If you cause or discover a fire: Activate the fire alarm, evacuate, and call Boston University Police at 3-2121. Only use the fire blanket and fire extinguisher if you know how and you feel confident that you will be successful. Be available to firefighters to give information about how the fire started.

CHEMICAL SPILLS OR EXPOSURE: If you cause or discover a chemical spill, report this to the TA and contact the Sargent College Chemical Hygiene officer (Dr. Susan Kandarian) via the Health Sciences secretary. Warn all others in the area and evacuate. For spills covering small amounts of skin, immediately flush with water for no less than fifteen minutes. Wash with warm water and soap to facilitate removal of any residual materials. If a delayed reaction is noted, seek medical attention and explain carefully what chemicals were involved. For larger spills, quickly remove all contaminated clothing and shoes while using the safety shower. Get medical attention as soon as possible. For eye exposure to chemicals, turn on the eyewash and immerse eyes directly into the eye fountain for several minutes.

INJURIES & FIRST AID: If an injured person is not breathing, provide CPR if you are trained to do so and get medical attention (call BU Police at 3-2121). If an injured person is bleeding severely, control the bleeding by compressing the wound with a cloth or whatever is available. Wrap the injured person to avoid shock and get immediate medical attention. In the case of a less severe cut, wash the cut, cover with a clean cloth and get medical attention. The BU Police will provide transportation to a nearby medical facility.

REPORTING OF ACCIDENTS:

Call BU Police immediately at 3-2121. They will determine if medical care is required and arrange transportation to a clinic or hospital emergency room, if necessary.

The nature and location of the accident must be reported; give your name, telephone number and address. Tell where you will meet the emergency vehicle. If several individuals are involved, report how many, whether they are unconscious, burned or trapped; whether an explosion has occurred; and whether there is or has been a chemical or electrical fire.

- Tell others in the area about the nature of the emergency.
- Meet the BU Police at the place you indicated. Send someone else if you cannot go.
- Do not make any other telephone calls unless they directly relate to the control of the emergency.
- Be prepared to tell emergency workers the nature and amounts of any chemicals involved in the emergency.

APPENDIX II: HEALTH CARE CAREERS

The Human Physiology Program in the Department of Health Sciences has prepared many students for successful admission to professional health care programs. For those individuals seeking a career in one of the health care professions, including medical school, and who have a strong interest in the sciences, the Human Physiology major provides an alternative to the traditional biology degree. With its focus on the study of human biology, a major in Human Physiology expands upon the required premedical requirements (listed below) with the addition of classes such as gross human anatomy, exercise physiology, neuroanatomy and neurophysiology, and cardiopulmonary pathophysiology. Breadth of academic preparation is insured by elective distribution requirements in the humanities and social sciences.

Health career schools prefer students who display a variety of interests with the quality and scope geared to meet the admission requirements of one's institutional choice. Above all, admission will depend upon academic achievement, unique interest and skills, clinical experiences, and letters of recommendation. In addition, medical schools require that students complete the following premedical courses (included in the Human Physiology curriculum):

Biology: (one year)
BI 107-108

Chemistry: (one year general chemistry and one year organic chemistry, some schools also suggest biochemistry)
General Chemistry CAS CH 101-102
Organic Chemistry CAS CH 203-204

Physics: (one year) CAS PY 105-106

Mathematics: (one year) CAS MA 121-122 or MA 123-124

Many of the faculty in the Health Science Department hold joint appointments with various departments in the School of Medicine and have extensive research laboratories where students may gain experience and insights regarding medical research programs in specialized areas. The department has extensive collaborative research relationships with various universities, hospitals and industrial research laboratories both in the greater Boston area and the surrounding New England states.

Each student in the department is assigned an academic/career advisor who works closely with the student in career planning, course selection and determining the professional school best suited for their particular health career.

APPENDIX III: OCCUPATIONAL HEALTH CENTER RECOMMENDATION FOR ALL EMPLOYEES WHO WORK IN HEALTH CARE SETTINGS

I. Tuberculosis (TB) Skin test or Screen

A. All health care workers need to be either skin tested or screened for TB on hire and annually thereafter unless they can document a negative skin test within the last 90 days. In the latter case, they only have to repeat testing in one year.

B. Employees who have a history of a positive PPD skin test will need to be screened annually for signs and symptoms of active tuberculosis.

II. Proof of immunity to MMR (measles, mumps, rubella)

A. Positive titers or

B. Physician documentation of having the diseases or

C. Two MMR vaccines-health care workers born after 1957 should have documentation of one MMR vaccine after 12 months of age with a repeat at a later date.

III. Hepatitis B vaccine

A. Hepatitis B antibody titer 6-12 weeks following completion of Hepatitis B vaccine series
or

B. Declination form refusing Hepatitis B Vaccine

III. Tetanus Diphtheria vaccine within the last 10 years

(Presently new adult vaccine recommended by CDC and MDPH is Tetanus, Diphtheria and Pertussis, TDAP)

IV. Proof of immunity to Varicella

A. Documentation of Varicella vaccine

B. Positive Varicella titer

C. Physician documentation of having Varicella disease

HEPA N95 respiratory Mask Fit and Seal Test.

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APPENDIX IV: AFFILIATIONS IN HUMAN PHYSIOLOGY (HS 410)

Introduction

The decision to undertake a clinical affiliation or field experience may be one of the most important choices that you make during your undergraduate or graduate career. This manual is not an attempt to answer all of your questions about affiliations but will hopefully provide basic information about the nature of the affiliation as well as a sample of some of the sites that the department has worked with over the last ten years.

The major goal of an affiliation is to provide you with an experience that is different from the classroom in which you can apply much of the knowledge you have gained in previous class work. I indicate to our various supervisors in an introductory letter that the "*major goal is to provide the student with various experiences that he or she is not capable of receiving in our department as well as giving them a "sense" of the professional real world.*" Exposure to a hospital setting, research laboratory or clinical environment, direct patient contact, and various laboratory responsibilities are certainly all within the realm of available experiences. It is not expected that the supervisor spend an inordinate amount of time but merely act as a guide in the learning process.

Because human physiology is not licensed by a national organization, a specific list of objectives is not provided to the supervisors; this is open ended and varies from institution to institution. Site supervisors embrace this freedom and use it as an opportunity to educate students about real world application, goal-setting, and priorities as well as technical skills development. We strongly believe our partner sites provide our students with excellent experiences and exposure in the clinical and research areas.

The Department of Health Sciences has numerous affiliations within the Greater Boston area. We have also established many others in various parts of the country, which are too numerous to list in this manual. With this wide range of experiences to choose from, we are confident that you will find an affiliation that is intellectually stimulating and relevant to your future pursuits.

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Sargent College - Boston University
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Boston, MA 02215
Email: charland@bu.edu
Phone: 617-353-2718
FAX: 617 353-7567

Policies and Procedures

Coordinator: **Danka Charland**

Description: **HS 410:** Practical experience in a clinic, hospital, community institution and/or setting as appropriate. The majority of the field sites chosen will be those offering experience in the evaluation of cardiovascular health and fitness, fitness classes, cardiac rehabilitation, clinical research, and other duties specific to the day-to-day operation of these agencies.

Prerequisites:

- Completion of all required academic courses through junior year. (No sophomores will be allowed to register)
- **PRIOR** consent of your advisor
- Cumulative grade point average of 2.0 is required before an affiliation can commence.

Credits:

- HS 410: 4 - 8 credit hours; 140-280 contact hours; grading will be on a P (Pass) or F (Fail) basis.

Objectives: The student(s) will demonstrate in a clinical or research setting ability to:

1. apply the knowledge gained in academic training .
2. adapt quickly to the routines and procedures required in the assigned laboratories and clinics.
3. perform their assigned tasks with competence and with a minimum of supervision.
4. conduct themselves in a mature, professional manner which will instill confidence in the clients with whom they come in contact.
5. work harmoniously with all fellow workers in the assigned agency.

A. Registration for Affiliation

Undergraduate students in the Department of Health Sciences enrolling in *HS 410 Field Experience in Human Physiology*, will be subject to the following policies:

1. Human Physiology (HP)

The credit requirement for a field affiliation will be either 4 or 8 credit hours for students electing to enroll in HS 410. 140 contact hours is required for 4 credit hours; 280 contact hours is required for 8 credit hours.

Summer Enrollment. If the affiliation is to be taken in the summer, the *minimum* registration will be 1 credit hour during Summer II session preceded by or followed by 3 or 7 credit hours of HS 410 in the Spring or Fall semester, respectively, depending on the total contact hours.

2. Retroactive affiliations (e.g., if you worked previously in a hospital or fitness setting, either for salary or volunteer status) **will not be considered**. Pre-registration is required for all affiliations.

3. Stipends: Typically affiliations arranged within the greater Boston area do not provide stipends. There are no restrictions regarding stipends. However, if an affiliation is arranged whereby the student is paid for services/experience, the experience must qualify as an appropriate affiliation.

B. Standard Procedures to Obtain an Affiliation

The following steps MUST be followed in this order, beginning one semester prior to desired start:

- 1) **Affiliation Manual:** Review a copy of the Affiliation Manual and Binder located in Sargent, Room 443.
- 2) **Site Selection:** Review the list of available sites in the Affiliation Manual and select three potential sites from this list. You may also suggest and generate your own research and information for new sites, if desired. ****To learn more about current available sites:**
 - a. please contact Danka Charland in Room 443 to read previous students' comments on their experience at their affiliation sites.
 - b. research information about organizations online.
- 3) **Meeting:** Schedule a time to meet with your advisor AFTER you have reviewed the Affiliation Manual and begun the site selection process. Determine your major interest and the nature of the experience you would like to be involved with. This should be determined either from the listing

of current affiliations (see attached Affiliation Sites) or other sources (*i.e., similar institutions in other areas of the country possibly nearer to your home*).

- 4) **Contact Information:** Once you have identified up to three sites of interest, your advisor will provide contact information for appropriate sites in person or via email based on availability and student interests.
- 5) **Site Selection:**
 - a. **If your sites are on the attached, approved site list, then:** Make arrangements for an appointment (interview) with a potential supervisor at a selected institution(s) (approximately 2 months prior to the beginning date of the affiliation) by emailing them your resume and expressing an interest in an affiliation.
 - b. **If you intend on pursuing sites not listed in this manual:** (*i.e.* nearer to your home, no previous student has worked with them, personal contact) then you must schedule a time to meet with your Faculty Advisor and have them sign off on the enclosed Affiliation Approval Form. This form must be submitted to the Coordinator to obtain the credits. Then follow remaining steps as before.
- 6) **Interview:** Approach the interview as if it was for a job--it may turn out to be exactly that. During the interview discuss the nature of experiences you will receive; if you have a particular interest, make sure that you indicate such at this time. Be sure that the experience will entail more than just administrative work. If possible, your potential schedule and days per week should be discussed at this meeting.
- 7) **Email Danka Charland (Coordinator):** As soon as possible after the interview or formal offer of internship, report back to the Coordinator and indicate your decision and proposed schedule. The coordinator will send a letter, and if necessary a contract, to the supervisor formalizing your affiliation and describing the objectives of the affiliation. If the information is not already known, it is the student's responsibility to provide the Coordinator with the name, phone number, and address of the prospective supervisor soon after the appointment is made.
- 8) **Grading:** Before you receive a grade (pass, fail) for your affiliation you must accomplish the following:
 - a. Just prior to the conclusion of your affiliation make sure that you send the **Final Evaluation** form (HP_Site Evaluation of Student) to your supervisor and that the supervisor then submits a grade and evaluation back to the Coordinator.
 - b. Fill out the **Student's Evaluation** form (HP_Student Evaluation of Site) of the affiliation and submit it to the Coordinator.

Affiliation Approval Form

****Please complete this form and have your faculty advisor sign it. Submit this form to: Danka Charland, mailbox Room 443.**

*

Student Information

Name	Phone
Email	ID Number
Course Number (HS 410 or HS 412)	Credit Hours

Affiliation Site Information

Affiliation (agency name, department, division)			
Site Administrator Name and Title			
Mailing Address			
Description of Affiliation			
Supervisor Phone		Supervisor Email	
Website			
Estimated Start Date		End Date	
Hours per week on Site		Anticipated Hours this Semester	

Faculty Advisor Signature: _____ **Date:** _____

Student Evaluation of Field Placement

Instructions:

This evaluation must be completed by the student at the end of the internship and submitted to the Coordinator prior to receive a final grade.

Student Name	Date	Internship Site Name

1. How did you select your internship site? Did you have any help from Sargent College staff or faculty? If so, who, and how did they help?

2. Please list your responsibilities/roles at the internship site. Identify each responsibility as participant or observer. Note the percentage of your internship time per role.

Responsibility/Role	Participant/ Observer	Percentage of Internship	Comments

3. Did you feel adequately prepared for responsibilities? Yes _____ No _____

4. Did you receive any training on site? If so, what type of training?

5. Please list any courses that would have been helpful in preparing you for your internship. Also, attach any additional comments concerning your internship.

6. This internship experience increased my ability to work in a health setting.

____ Strongly agree ____ Agree ____ Neutral ____ Disagree ____ Strongly disagree

6. Would you recommend this internship site to other students? Yes _____ No _____

Please explain.

Signature: _____ Date: _____

Site Administrator Evaluation of Student

Instructions:

- *The Site Administrator should complete this at the end of the internship. This evaluates the student's performance throughout the internship experience.*
- *Please review this with the student before submitting the completed evaluation to the Coordinator.*

Site Administrator Name	Date	Email
Student Name	Internship Title	Start-End Dates

Please evaluate the student's performance throughout the internship:

	Very Poor	Poor	Satisfactory	Very Good	Excellent	N/A
1. Student's work habits						
*Student is reliable	1	2	3	4	5	N/A
*Student is punctual	1	2	3	4	5	N/A
*Student regularly attends	1	2	3	4	5	N/A
2. Motivation and Initiative						
*Student takes initiative	1	2	3	4	5	N/A
*Student completes projects in a timely manner	1	2	3	4	5	N/A
*Student demonstrates good judgment	1	2	3	4	5	N/A
3. Organizational Skills	1	2	3	4	5	N/A
4. Work style						
*Works well in a team	1	2	3	4	5	N/A
*Works independently	1	2	3	4	5	N/A
*Accepts feedback and suggestions	1	2	3	4	5	
5. Relationships						
*Communicates with supervisor	1	2	3	4	5	N/A
*Professional conduct with co-workers	1	2	3	4	5	N/A

1. To what extent did the student's work contribute to the mission of your agency/organization?

2. Additional Comments (you may provide more information about the student, and/or feedback about any aspect of the Required Internship Program):

Grade Evaluation (Please Circle) **Pass**_____ **Fail**_____

Contact Hours completed:_____

Site Administrator
Signature:_____ **Date**_____

—
*The student internship experience is an important component of our students' education and we are grateful to you for accepting this student for internship experience.

Affiliation Sites

The following list of affiliations sites has developed over the last 25 years. Many of the sites are available via public transportation. Many will require that the student has their own transportation.

Cardiac Rehab

Boston Medical Center;
UMASS Medical Center
Jordan Health & Wellness Center
Malden Hospital
Miriam Hospital
North Shore Medical Hospital
Norwood Hospital
Quincy Medical Center
Rehab Hospital of Rhode Island
South Shore Hospital
Western Connecticut Cardiac Hospital

Cardiology

Beth Israel Deaconess Medical Center
Boston Medical Center
Brigham & Women's Hospital
Children's Hospital
Mt. Auburn Hospital
Newton Wellesley Hospital
North Shore Medical Center

Cardiology (Research)

Beth Israel Deaconess Medical Center
Spaulding Rehabilitation Hospital
VA Medical Center

Pulmonary

VA Medical Center
Center for Blood Research
Newton Wellesley Ortho Association
The Women's Center, Boston Medical Center
Deaconess Hospital Neurology

Applied Physiology

NE Medical Center
BU, Barreca Musculoskeletal Lab
MGH

Miscellaneous

Nutrition Research Center
Center for Psychiatric Rehab
Children's Hospital
Franciscan Children's Hospital & Rehab
Boston Medical Center

Hebrew Rehabilitation Center for the Aged
USARIEM

Goldman School of Dentistry

Harvard School of Public Health

Tufts University School of Dental Medicine

Jean Mayer USDA Human Nutrition Research Center on Aging, Nutrition, Exercise Physiology, and
Sarcopenia Laboratory

University Hospital

Out-of-Town

Unum Provident Corporation

Spaulding Memorial Hospital

How to Request a Letter of Recommendation

As faculty members, we are pleased to support your applications to study abroad, to apply for employment positions after graduation and to support your applications to graduate schools. To facilitate this process, please follow the procedure below.

Human Physiology Program Recommendation Request Procedures

1. Provide at least two weeks of notice. It is highly recommended you sign up for office hours with the appropriate faculty member to discuss in person the specific request.
2. Following your meeting, please email (as Microsoft Word document attachments) the following information to your advisor:
 - a) Letter of Recommendation Form(s) provided by schools to which you are applying (if applicable)
 - b) Updated resume
 - c) Copy of your transcript (may be unofficial)
 - d) Program/Job Description (a website link may be appropriate)
 - e) If this is a graduate program, provide your personal statement, letter of intent, or equivalent.
3. Place any hard copies of forms in the faculty mailboxes located in Room 443.
4. Letters will be sent in order of receipt. We will notify you by email when letters are completed.