



College of Health & Rehabilitation Sciences: Sargent College

GRADUATE STUDENT MANUAL

2008-2009

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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), Rehabilitation and Human Services, 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

Welcome to the Department of Health Sciences in Sargent College of Health and Rehabilitation Sciences. We look forward to having you as a graduate student and welcome the opportunity to work with you.

This manual has been assembled to provide you with information about your program of study as well as policies and responsibilities therein. Please review it thoroughly. If you have any questions about the curriculum or policies outlined, speak with your faculty adviser. Information in this manual is not intended to replace information available from the following resources:

- ◆ **Sargent College Graduate Bulletin**
- ◆ **Boston University Telephone Directory**
- ◆ **Mugar Library Guidelines for Preparation of Thesis and Dissertations**
- ◆ **Academic Conduct Code**
- ◆ **<http://www.bu.edu/sargent>**

The Department offers graduate programs leading to the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Applied Anatomy and Physiology. Each student, working together with a faculty adviser, designs his or her individual program based on their academic background, professional experience, and career objectives. This planning includes scheduling of required courses, selection of electives, inclusion of directed study, research, professional or teaching experiences, and selection of projects for scholarly papers, theses, and dissertation research. The adviser will evaluate transcripts for courses to be transferred for credit from other educational institutions and set-up committees and dates for examinations and thesis defense, where applicable. Students are assigned to an academic adviser on the basis of academic and scientific interests but, the student may request reassignment if the expertise of another faculty member is more suitable.

III. FULL-TIME FACULTY IN APPLIED ANATOMY & PHYSIOLOGY

Faculty and Areas of Specialization

Helen Barbas, Ph.D.

Ph: 617-353-5036, barbas@bu.edu,

Office: Sargent - Rm 431

McGill University, Canada; *Professor*, Neuroscience, organization of prefrontal cortex.

Mahasweta Girgenrath, Ph.D.

Ph: 617-353-2739 girgenrath@bbri.org

Office: Sargent – Rm 425

Northeastern University; *Assistant Professor*, 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; *Professor*, 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, *Professor and Chair*, Cardiovascular cell biology and cytoskeleton

Judith L. Schotland, Ph.D.

Ph: 353-8449, schotlnd@bu.edu

Office: Sargent – Rm 427

Northwestern University, *Clinical Associate Professor and Director, Human Physiology and Applied Anatomy and Physiology Programs*; 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 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 Service 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 advisers to certify that all degree requirements are met. The application for Graduation must be signed by your adviser and returned to the SASS Office (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. Doctoral students must check with their adviser as to their eligibility to participate and it is recommended that the dissertation defense be scheduled by mid April if the student is to receive their hood and diploma in the May ceremony.

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.

V. MASTER OF SCIENCE IN APPLIED ANATOMY AND PHYSIOLOGY

1. Course, Grade and Registration Requirements

All candidates must successfully complete a minimum of 34 semester hours of graduate-level work. At least 16 semester hours must be in courses offered by the Department of Health Sciences. Up to 8 hours of graduate course work may be transferred from other educational institutions with departmental approval. In cases where students attend Boston University as a "special student" only 8 hours of course work can be transferred to the degree program.

An overall grade point average of 3.0 or higher is required for graduation.

No grade less than C+ is acceptable for inclusion in the 34-semester-hour requirement. In addition, students receiving three grades (or a total of 12 credits) below B-*will be* terminated from the degree program. In the event of an unacceptable grade, no course required by the Department of Health Sciences for the degree program may be repeated more than one time. An unacceptable grade received when a course is repeated will result in termination from the degree program (See Appendix B for curriculum outline of MS requirements).

Some course work, such as Directed Research (see Appendix G), may be graded on a P (pass) or F (fail) basis. P then indicates B- or better work. A grade of **I** must be completed no later than one calendar year of the date on which the incomplete grade is reported. A grade of F will be assigned automatically and permanently if the coursework remains incomplete on the assigned date or twelve months after the **I** grade has been awarded, whichever comes first.

All master's degree candidates must maintain continuous registration for academic credits (minimum: 0.5 credit hrs) during the Fall and Spring semesters of each year. Failure to register will result in administrative withdrawal of the candidate and necessitate reapplication to continue the program. Degree candidates must be registered for academic credit or pay the continuing student fee during the final semester in which the thesis defense is conducted, unless the thesis is being completed in the summer. A leave of absence may be requested by petition for specified lengths of time provided an explanation is presented. Such a petition should be formulated with the guidance of the SASS Office and subsequently addressed and presented to the Program Director. Candidates must complete their program within five years from the first semester of matriculation and must submit an Application for Graduation at least three months prior to the expected date of graduation. These can be obtained from the Academic Services Center (Room 207).

2. Curriculum

Candidates for the Master of Science degree in Applied Anatomy and Physiology can fulfill the degree requirements in one of two ways: 1) Coursework/Scholarly Paper (defined below and in Appendix C), or 2) Coursework and Thesis (defined below). At the time of acceptance into the MS program all candidates are initially placed into the Coursework/Scholarly Paper Option. To be considered for the thesis track a candidate must identify a suitable topic and adviser in the department.

3. Coursework/Scholarly Paper

A candidate's program must include 18 semester hours of a **core curriculum** consisting of a course in statistics/research design (4 cr hr):

SPH BS 703 Biostatistics (4)

and

SAR HS750 Analysis of Physiological Literature (1 credit for each of 2 semesters)

plus three of the following:

SAR HS 542 Exercise Physiology (4)

SAR HS 581 Gross Anatomy (4)
SAR HS 582 Neuroanatomy and Neurophysiology (4)
SAR HS 783 Metabolic Regulation (4)
SAR HS 575 Cardiopulmonary Pathophysiology (4)
CAS BI 552 Molecular Biology I (4)
CAS BI 553 Molecular Biology II (4)
(Numbers in parentheses indicate the number of course credits in semester hours).

Students have the option of designing a program emphasizing *physiology or neurosciences*. This is reflected in the selection of 12 additional credits from either a basic or clinical area of specialization and/or electives, which may include departmental, college or university offerings which contribute to their educational objectives and career goals. In addition they will register for 4 credits of Scholarly Paper (SAR HS 793). (See Appendix A and B for more complete information). Thus, the overall semester hour requirements for the Master's degree in Applied Anatomy and Physiology for the student choosing the Coursework/Scholarly Paper Option may be summarized as follows:

Core Curriculum (18 credits) + Specialization & Electives (12 credits) + Scholarly Paper (4 credits) = 34 credit hours Total

4. Thesis Option

The decision to pursue a thesis should be agreed upon by a faculty member who is willing to serve as the research adviser. A faculty member must agree to become the student's academic adviser and eventually first reader on the thesis. The academic adviser will assist the student in identifying a topic for thesis research. If the nature of the thesis project is such that an affiliation must be established with another laboratory or institution, arrangements between the Department of Health Sciences and the external investigator or facility must be completed prior to initiation of the research. These arrangements include agreement of the external investigator to participate in research supervision and serve as the second reader. Thesis projects based outside of the Department of Health Sciences must, however, be closely related with the ongoing research program or expertise of at least one Health Sciences faculty member with a full time appointment. When this decision is finalized between the student and the faculty member notification should be given to the department Chair so that the student's records can be updated. A candidate after successfully completing a thesis project must present it orally in a session open to the public.

- The thesis committee will consist of **two** members who are involved in and/or are knowledgeable about the thesis topic area. At least one of the advisers must be a full-time member of the departmental faculty.
- Candidates selecting the thesis option must include between four and eight credit hours of SAR HS 791 Directed Study and Research in their total of 34 semester hours.
- Required steps for completing a thesis:
 - 1) Plan project with adviser
 - 2) Thesis proposal meeting (with committee members)
 - 3) Data collection
 - 4) Data analysis
 - 5) Oral presentation
 - 6) Submission of written thesis
- Mugar Library has published a guide for Dissertations and Theses (<http://www.bu.edu/library/guides/theses/>). These instructions should be carefully studied before initiating preparation of the thesis.

The overall semester hour requirements for the Master's degree in Applied Anatomy and Physiology for the student choosing the Thesis Option may be summarized as follows:

Core Curriculum (18 credits) + Specialization & Elective Hrs (8-12 credits)+ Thesis (4-8 credits) = 34 credit hours Total

VII. DOCTOR OF PHILOSOPHY (PH.D.) IN APPLIED ANATOMY AND PHYSIOLOGY

1. Curriculum, Grade and Registration Requirements

Students admitted with a **bachelor's degree** must complete the equivalent of 64 credits; 20 credits of a core curriculum, 16 credits of specialization courses defined in consultation with the academic advisor, and at least 28 credits of research.

Those admitted with a **master's degree** must complete 32 credits; 18 credits from the core and specialization curriculum defined in consultation with the academic advisor and 14 credits of research (*These requirements are consistent with the Graduate School of Arts and Sciences at Boston University*).

In both cases a minimum grade point average of 3.0 must be maintained. No more than 8 credits of any C+ grade will be acceptable for inclusion in the requirement.

A doctoral student must take a written comprehensive examination at the end of all formal coursework after which he/she is admitted to candidate status. The dissertation proposal will be presented to his/her committee after the comprehensive examinations are successfully completed. A candidate must complete the dissertation and defend it orally before the department, college, and university faculty. A candidate must be a full time (full-time: 12-18 credit hours per semester or, for a teaching or research fellow, 8-12 semester hours per semester) student for a minimum of two consecutive semesters and complete the degree in 5 years (post master's) and 7 years (post-bachelor's).

All doctoral degree candidates must register continuously for academic credit (minimum: 0.5 credit hrs) during the Fall and Spring semesters of each year. Failure to register will result in administrative withdrawal of the candidate and necessitate reapplication to the program. Degree candidates must be registered for academic credit or pay the continuing student fee during the final semester in which the dissertation defense is conducted. Leave of absence may be requested by petition for specified lengths of time provided an appropriate justification is presented. Such a petition should be formulated with the guidance of the Academic Services Center (ASC) and subsequently addressed and presented to the Chair of the Department. Candidates must submit an Application for Graduation at least three months prior to the expected date of graduation. These can be obtained from the Academic Service Center (Room 207).

2. Preparation by the Candidate of Proposed Course of Study

It is recommended that by the end of the second semester of study, each *full-time* doctoral student submit to their advisor a **proposed course of study** and an agreed-upon time-line for the remainder of the formal coursework, independent study, and dissertation research. Courses, directed study credits and dissertation credits should be indicated for each semester of the candidate's program. *Part-time* students (i.e., those registering for less than 12 credits per semester and not serving as teaching assistant) must submit their proposed course of study no later than the end of the semester in which they will have completed 24 semester hours toward the doctoral degree. The proposed course of study as well as the other requirements for the doctoral degree will be monitored by use of the Doctoral Checklist (*Appendix D*).

3. Academic Advisor

The candidate's primary advisor will be a full-time member of the Department of Health Sciences and will be responsible for academic and research advisement.

4. Comprehensive Examination Requirements

A candidate must take a written comprehensive examination after coursework is completed. The comprehensive exam committee is composed of 4 faculty members and may include departmental faculty (at least 2, including the mentor), other University faculty and individuals from other institutions, as appropriate. This committee is responsible for drawing-up, administering, and evaluating the written comprehensive examination. It is the advisor's responsibility to describe rules and format to committee members outside the Health Sciences doctoral program.

Four to six months before the written exam, the candidate must meet with the thesis advisor to select the examination committee. The advisor will suggest examiners with input from the candidate about the composition of the committee and the material to be tested. The advisor, in consultation with the candidate, will decide on four broad areas for examination. The committee members will then be requested to suggest 15-20 original articles and reviews under one of the topics (based on the examiner's general expertise). The advisor along with the student may suggest some articles to each of the examiners for inclusion, but the final list must be approved by the examiner. The reading list of each examiner must contain both general articles within each topic, as well as specific articles based on the candidate's area of research. The candidate is responsible for retrieving and studying the articles. The total of 60-80 articles will form the basis for the written exam.

The written examination is taken on two consecutive days. The first day is devoted to general questions related to the general articles from each list. The second day is devoted to questions related to the candidate's area of specialization based on the specific articles on each list. Each examiner will provide two questions for day one and two questions for day two. On each day the candidate answers 4 questions in a time period not to exceed 4 hours. The candidate chooses one of two questions to answer provided by each committee member on each day, totaling 8 responses to 8 different questions for the entire written exam. No materials or aids are allowed during the written exam. A computer may be used to write responses to questions provided by the committee. No aids stored on the computer are allowed nor is access to on-line information. Figures and flow charts can be made using paper and writing utensils. Within a week of completion of the written exam, members of the committee should communicate to the primary advisor as to whether the student's written responses are sufficient in quality to proceed to the oral exam. On average for the 8 responses, a minimum grade of B- is required. If an average of less than B- is determined by at least 2 members of the committee, then the written exam should be rescheduled (no earlier than 3 months and no later than 6 months from the original date) and the student advised of his/her weaknesses that require improvement. If the second written exam is less than B- then the student will be excused from the doctoral program and an MS degree awarded provided the appropriate requirements are met.

5. Doctoral Dissertation Requirements

a. Overview

Candidates are strongly encouraged to begin preparation for their dissertation research as soon as possible after entering the PhD program. This preparation should include selecting a primary advisor, initiating laboratory work under the supervision of the advisor and reviewing the literature of original research in the subject area of the dissertation. The dissertation committee may be composed of the same or different members as the comprehensive exam committee and may have up to 5 members. This committee can be formed soon after the commencement of dissertation work (such as in the first year) or may not be formed until after the comprehensive exam is passed. At least one committee member must be from outside the College. In addition, an outside reviewer is required for all dissertations for the PhD degree at Sargent College. This review will occur after completion of the dissertation and before the final thesis defense. Anonymous reviewers of the student's grant applications and/or manuscripts may serve the requirement for an outside reviewer.

b. Proposal for Dissertation Research

The dissertation research proposal should include a series of at least 2-3 closely related novel experiments designed by the candidate in close association with the primary advisor and, if applicable, the secondary advisor. The format for the dissertation proposal is found in *Appendix E* and is based on an R01 grant proposal to National Institutes of Health. The proposal should be submitted to each member of the candidate's committee during the semester immediately following successful completion of the comprehensive examination or at the discretion of the student's advisor. The academic advisor will arrange a meeting of the candidate's committee where the candidate will present and discuss the dissertation proposal. After the review of the dissertation proposal, the readers will either sign the final approval form [Proposal Approval Form (PAF) obtainable from the departmental administrator] or write a brief critique of the proposal requesting specific modifications. The proposal is then submitted to the Department Chair along with the remainder of the candidate's outline for doctoral study.

c. Publication / Presentation / Requirements

Careful attention to planning each candidate's program, including formal coursework, independent study and dissertation research, will enable the candidate to meet the objective of having at least one original research paper submitted for publication in a reputable scientific journal prior to receiving the doctoral degree. The original research paper must be closely related in content area and be part of the series of dissertation research experiments designed by the candidate under the guidance of the advisor(s). In meeting the requirement for having at least one original research paper submitted for publication, it must be clear that the candidate was the primary person responsible for the research effort leading to the publications, i.e., they should be first author. Presentation at a regional or national professional meeting is encouraged.

d. Dissertation Defense

On completion of the dissertation research and the preparation of the complete dissertation manuscript, the candidate must defend the dissertation orally in a session open to other faculty, students, public and the academic community. Note that the completed dissertation manuscript must be presented to the committee members three weeks prior to the scheduled dissertation defense. The dissertation defense consists of a 45-minute presentation of the thesis project, including a statement of the problem and discussion of the conclusions. After the presentation there will be an open period of discussion and questions with the readers and other persons in attendance, followed by a closed session for further discussion between the committee and candidate. At the conclusion of the presentation and defense, the committee will have the opportunity to consider in private session the acceptability of the thesis and, upon reaching a decision, meet with the candidate to present the decision of the committee. If the candidate's dissertation defense is unsatisfactory, it may be repeated only following approval of a written petition to the Department. Disapproval of such a petition will result in the candidate's termination from the program.

e. Registration Requirement

While conducting research on the dissertation project, the student should register for an appropriate number of credits for HS 905 - Dissertation Research. If satisfactory progress is made, the student receives a "J" grade for each semester or summer term so registered until the final presentation/defense is held and the dissertation is accepted by the candidate's committee. At this time, the academic advisor determines a letter grade commensurate with the quality of the project and this grade takes the place of all J-grades appearing on the student's record.

f. Dissertation Preparation

Please see APPENDIX F: SARGENT COLLEGE POLICIES FOR PH.D. AND SC.D. DISSERTATIONS for a comprehensive review.

Mugar Library has published a guide for the writers of Dissertations and Theses. Please see <http://www.bu.edu/library/guides/theses/> for further details about the Boston University Library procedures for dissertations. These instructions should be carefully studied before initiating preparation of the dissertation. For the purposes of the BU Library and all other archival opportunities, the **name of the college** is Sargent College of Health and Rehabilitation Sciences.

To be eligible for the May commencement ceremony, the dissertation defense and public hearing must be scheduled at least 30 days prior to the Commencement date. After a successful defense, doctoral candidates are expected to complete their edits and submit a final document to the BU Library at least one week in advance of the Sargent Convocation date. Only students who have successfully deposited their dissertation in the library will be permitted to participate in the hooding ceremony.

IX. APPENDICES

- A. GRADUATE COURSES FOR APPLIED ANATOMY AND PHYSIOLOGY PROGRAM
- B. M.S. CHECKLIST & DEGREE REQUIREMENTS
- C. M.S. SCHOLARLY PAPER GUIDELINES
- D. PH.D. CHECKLIST & DEGREE REQUIREMENTS
- E. DISSERTATION PROPOSAL FORMAT
- F. SARGENT COLLEGE POLICIES FOR PH.D. AND SC.D. DISSERTATIONS
- G. GUIDELINES FOR INDEPENDENT/DIRECTED STUDY OR RESEARCH

APPENDIX A: GRADUATE COURSES IN APPLIED ANATOMY & PHYSIOLOGY

Sargent College of Health and Rehabilitation Sciences
Department of Health Sciences

HS 542 – Exercise Physiology (4)	HS 755 – Readings in Neuroscience (4)
HS 550 – Neural Systems (4)	HS 776 – Nutritional Epidemiology (4)
HS560 – Muscle Biology in Health and Disease	HS 783 – Metabolic Regulation in Clinical Nutrition
HS 575 – Cardiopulmonary Pathophysiology (4)	HS 791 – Ind/Dir Study/Thesis (4)
HS 581 – Gross Anatomy (4)	HS 792 – Research Design (2)
HS 582 – Neuroanatomy/Neurophysiology (4)	HS 793 – Scholarly Paper (0-4)
HS 710 – Graduate Affiliation (var. cr.)	HS 901 – Directed Study & Research (4)
HS 742 – Nutrition for Disease Prevention (4)	HS905 – Dissertation Research
HS 745 – Advanced Regional Anatomy (var. cr)	

Note: For additional elective/specialization courses see other departments in Sargent College as well as other colleges within Boston University, e.g. the Graduate School of Arts and Sciences, Graduate School of Engineering, Medical School and School of Public Health. A copy of their catalogs is in the Health Sciences office (Room 443). A selection of offerings from these departments follows.

A SELECTION OF ELECTIVE/SPECIALIZATION COURSES IN OTHER DEPARTMENTS AT BOSTON UNIVERSITY

SAR HP 565 Biomechanics	SAR PT 520 Functional Anatomy
SAR HP 771 Foundations of Motor Control	SAR RS 650 Philosophy of Science
SAR HP 782 Advanced Human Movement	CAS BB 522 Molecular Biology Laboratory
GRS CH 621 - Biochemistry I	GRS CH 622 - Biochemistry II
SPH EP 711 Introduction to Epidemiology	SPH EP 712 Epidemiologic Methods
GMS AN 702 Neurobiology of Learning & Memory	GMS AN 707 Neurobiology of Aging
GMS AN 808 Neuroanatomical Basis of Neurologic Disease	CAS CN 580 Intro to Computational Neuroscience
BI 575 Techniques in Cellular and Molecular Biology	CAS BI 555 Techniques in Cell Biology
GRS BI 756 Systems and Cognitive Neuroscience	CAS BI 544 Cell Motility & Cytoskeleton
GRS BI 755 Cellular and Systems Neuroscience	GRS BI 655 Developmental Neurobiology
CAS PS 544 Developmental Neuropsychology	GRS PS 732 Clinical Psychopharmacology

APPENDIX B: M.S. CHECKLIST & DEGREE REQUIREMENTS

Sargent College of Health and Rehabilitation Sciences
Department of Health Sciences

Name: _____ I.D.# _____ Adviser: _____

Address (local): _____ Telephone: _____

Address (permanent): _____ Telephone: _____

Core Courses	Credit	Grade	Date	Substitute
SPH BS 703 Biostatistics	4			
SAR HS 750 Analysis of Physiological Literature (2 credits)	1		/	
	1			
<i>plus three (3) of the following:</i>				
SAR HS 542 Exercise Physiology	4			
SAR HS 581 Gross Human Anatomy	4			
SAR HS 582 Neuroanatomy/Neurophysiology	4			
SAR HS 783 Metabolic Regulation	4			
SAR HS 575 Cardiopulmonary Pathophysiology	4			
CAS BI 552 Molecular Biology I	4			
CAS BI 553 Molecular Biology II	4			

Core courses **18 hrs**

Thesis Option

	Credit	Grade	Date	Substitute
SAR HS 791:4-8 credits				
Specialization & electives: 8-12 credits (to total 16 with thesis hours)				

Total **34 hrs**

Scholarly Paper Option

	Credit	Grade	Date	Substitute
SAR HS 793:4 credits				
Specialization & electives: 12 credits				

Total **34 hrs**

- 1) Maximum 8 credits transfer from another educational institution
- 2) No grade less than C+ will be counted toward the MS degree
- 3) Students receiving 12 credits (3 grades) below B- may be terminated from program
- 4) Minimum GPA: 3.0 (B) for graduation
- 5) Thesis track: 4-8 credits SAR HS 791 Directed Study/Research
- 6) Scholarly Paper track: 4 credits SAR HS793 Scholarly Paper in Applied Anatomy & Physiology
- 7) At least 20 of the 34 credits must be in courses offered by the program in Applied Anatomy & Physiology

APPENDIX C: M.S. SCHOLARLY PAPER GUIDELINES

SAR HS 793 Scholarly Paper in Applied Anatomy & Physiology (4 credits), Sem I, II

Objective

Production of a scholarly paper following the in-depth review, analysis, and synthesis of a research-related topic of scientific and / or professional relevance. The student, in consultation with their adviser, is responsible for development and completion of the paper.

Options

To fulfill the requirements of the non-thesis MS in Applied Anatomy & Physiology, a scholarly paper will be developed from the options listed below:

1. data-based research project
2. expanded literature review
3. project / program development

Requirements

Papers that are developed from data-based research will include the following:

Abstract (250 words)
Outline / Table of Contents (The outline is due within the third week of the semester registered for the course).
Background and Significance (Includes purpose, rationale and / or hypothesis).
Methods and Materials
Results
Discussion and Implications
References

Papers that are developed as an expanded literature review will include the following:

Abstract (250 words)
Outline / Table of Contents (The outline is due within the third week of the semester registered for the course).
Introduction
Extensive Literature Review (This must be comprehensive and up-to-date).
Summary and Implications
References

Papers that are developed as a program / project will include the following:

Abstract (250 words)
Outline / Table of Contents (The outline is due within the third week of the semester registered for the course).
Introduction or Background and Significance
Content of the program / project
Applications for use of the program / project
References

General

Typically, scholarly papers are between 10-25 pages in length, double-spaced.

In addition to comprehensively addressing the specific requirements (as described previously), grading of the paper will include evaluation of correct English grammar, spelling and syntax.

Two soft-bound, final copies will be required – one to the department and one to the adviser. A disk copy is also required for the adviser.

Successful completion of the scholarly paper will require the approval of the adviser, and / or other reviewers, if appropriate.

Completion dates:

For Spring graduation:

First Friday in March

For Winter graduation:

First Friday in December

The scholarly paper will be graded as Pass or Fail.

APPENDIX D: PH.D. CHECKLIST & DEGREE REQUIREMENTS

Sargent College of Health & Rehabilitation Sciences
Department of Health Sciences

Name: _____ I.D.# _____ Advisor: _____

Address (local): _____ Telephone: _____

Master's Degree _____ Hrs Transferred _____

Core Courses	Post BA/BS		Post MA/MS		Transfer/ Substitute
	Credits	Date Taken	Credits	Date Taken	
SPH BS 703 Biostatistics	4		4*		
SAR HS 750 Analysis of Physiological Literature	4		2		
<i>plus three (3) of the following:</i>					
SAR HS 542 Exercise Physiology	4		4		
SAR HS 581 Gross Human Anatomy	4		4		
SAR HS 582 Neuroanatomy/Neurophysiology	4		4		
SAR HS 575 Cardiopulmonary Pathophysiology	4		4		
SAR HS 783 Metabolic Regulation	4		4		
CAS BI 552 Molecular Biology I	4		4		
CAS BI 553 Molecular Biology II	4		4		
Core (credits)	20		18		
<i>Specialization (credits)</i>	16				
<i>Research (credits)</i>	28		14		
TOTAL	64		32		

*or evidence of prior accomplishment

Electives / Specialization

Course	When Taken	Grade	Credits	Comments

Research (SAR HS 905)

Course	When Taken	Grade	Credits	Comments

Comprehensive Exam: Pass _____ Fail _____ Date _____

Proposal Defense: Pass _____ Fail _____ Date _____

Dissertation Defense: Pass _____ Fail _____ Date _____

APPENDIX E: DISSERTATION PROPOSAL FORMAT

Sargent College of Health and Rehabilitation Sciences
Department of Health Sciences

Instructions. The proposal should follow the format of a formal research grant proposal.

It should be typed single-spaced in a 12 point font using the following format (based on the NIH R01 research grant proposal).

Citations of previous work should be accomplished using numbers in parentheses in the text which correspond to those in the reference list.

References

The references should be listed in alphabetical order with respect to the first author's last name and should include all of the author's last names and first and middle initials, the full title of the article or book cited, the standard abbreviation of the scientific journal, the volume number and first and last page numbers. For example: Andersen, P., R.P. Adams, G. Sjogaard, A. Thorboe and B. Saltin. Dynamic knee extension as a model for study in isolated exercising muscle in humans. J. Appl. Physiol. 59: 1647-1653, 1985.

1. Title of Investigation	Title should be descriptive of research investigation and developed in consultation with the advisor
1. Specific Aims	List the broad, long-term objectives and the goal of the specific research proposed, for example, to test a stated hypothesis, create a novel design, solve a specific problem, challenge an existing paradigm or clinical practice, address a critical barrier to progress in the field, or develop new technology. One page is recommended.
2. Background and Significance	This is the rationale for your project. Critically evaluate existing knowledge, and specifically identify the gaps that the project is intended to fill. Describe the effect of these studies on the concepts, methods, technologies, treatments, services or preventative interventions that drive this field. Two pages.
3. Preliminary Studies	Use this section to provide an account of the preliminary studies pertinent to this application. This information will also help to establish the experience and competence of the investigator to pursue the proposed project. One to two pages.
4. Research Design and Methods	Describe the research design conceptual or clinical framework, procedures, and analyses to be used to accomplish the specific aims of the project. Include how the data will be collected, analyzed, and interpreted. Describe any new methodology and its advantage over existing methodologies. Describe any novel concepts, approaches, tools, or technologies for the proposed studies. Discuss the

	<p>potential difficulties and limitations of the proposed procedures and alternative approaches to achieve the aims. As part of this section, provide a tentative sequence or timetable for the project.</p> <p>Three to five pages.</p>
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APPENDIX F: SARGENT COLLEGE POLICIES FOR PH.D. AND SC.D. DISSERTATIONS

General guidelines for the dissertation defense:

- All students who plan to receive a research doctoral degree (Sc.D. or Ph.D.) must complete a dissertation and present a public seminar about their work.
- It is expected that the committee will require the student to submit a final draft for their review at least 2 weeks (*3 weeks for Applied Anatomy & Physiology*) ahead of time to ensure that a complete and high-quality document is available for the faculty to review prior to the defense.
- Preparation of the dissertation must follow all applicable guidelines in the Sargent College Academic Conduct Code as well as the scholarly standards of the student's specific research interest.
- A doctoral dissertation defense can be held during the summer months if all members of the committee agree to attend. A public seminar must still be scheduled and announced to the Sargent community.
- Please see <http://www.bu.edu/library/guides/theses/> for further details about the Boston University Library procedures for dissertations. For the purposes of the BU Library and all other archival opportunities, the **name of the college** is Sargent College of Health and Rehabilitation Sciences.

Participation in the May Hooding Ceremony:

- To be eligible for the May commencement ceremony, the dissertation defense and public hearing must be scheduled at least 30 days prior to the Commencement date. At an absolute minimum, if the student is planning to receive a doctoral hood in the May ceremony, the dissertation draft must be completed by 3/30.
- After a successful defense, doctoral candidates are expected to complete their edits and submit a final document to the BU Library at least one week in advance of the Sargent Convocation date.
- Only students who have successfully deposited their dissertation in the library will be permitted to participate in the hooding ceremony.

Registration and graduation form requirements:

- Students must maintain continuous registration during their doctoral studies. Specific requirements for credits can vary by department but the minimum expectation is for the student to be registered for 0.5 credits with his/her dissertation advisor.
- Doctoral students must complete the Sargent College Graduation Application by February 1st to be included in the Boston University Commencement Program and by April 1st to be listed in the Sargent College Convocation program..

APPENDIX H: GUIDELINES FOR INDEPENDENT/DIRECTED STUDY OR RESEARCH

Sargent College of Health and Rehabilitation Sciences
Department of Health Sciences

Introduction:

The primary goal of a directed study/research course or contract is to provide the student with an opportunity of working more closely with an experienced faculty member(s) or clinician(s). The experience to be gained through this arrangement is unlikely to be attained in the typical lecture/laboratory course offering. In order for this experience to be worthwhile to the student, faculty member, or the site supervisor they must come to agreement regarding the scope of the work to be completed. This is true whether it involves laboratory research, clinical experience, or pilot work leading to the master's thesis, or doctoral dissertation.

Independent Study/Research Policies and Procedures:

The following course numbers qualify as independent/directed study courses for graduate students:

HS 791 Directed Study and Research (MS)

HS 811 Practicum in Clinical Nutrition

HS 901 Directed Study and Research (PhD)

HS 905 Dissertation Research

- A. Prior to initiation of directed study/research in HS 791 or 901 the student must
- 1) complete a **Declaration of Intent (Form DSR)** obtainable from the departmental secretary or adviser;
 - 2) discuss the project or directed study completely with the faculty member who is responsible for overseeing the project
 - 3) if a third party is involved, e.g. a clinician or researcher at another site, the project must be discussed with them and approved
 - 4) sign and obtain signatures from all parties involved
 - 5) return complete DSR form to adviser and one to departmental secretary for student's record
- B. If the research (HS 791, HS 905) is partial fulfillment of the requirements for the master's or doctoral degree the procedures for committee membership, proposals, progress reports, defense, etc., is found in another section of this Graduate manual. The above mentioned form (DSR) is not to be used in the case of direct thesis or dissertation research.

Comprehensive Examination Form (CEF)

Candidate: _____

Date of Exam: _____

Advisor: _____

Committee Members:

_____	_____	_____
(Name printed)	(Signature)	(Pass/Fail)
_____	_____	_____
(Name printed)	(Signature)	(Pass/Fail)
_____	_____	_____
(Name printed)	(Signature)	(Pass/Fail)
_____	_____	_____
(Name printed)	(Signature)	(Pass/Fail)

Comprehensive Exam: Pass _____ Fail _____

This form should be placed in candidate's file.

Proposal Approval Form (PAF)

Candidate: _____

Date of Exam: _____

Advisor: _____

Committee Members:

_____	_____	_____
(Name printed)	(Signature)	(Pass/Fail)
_____	_____	_____
(Name printed)	(Signature)	(Pass/Fail)
_____	_____	_____
(Name printed)	(Signature)	(Pass/Fail)
_____	_____	_____
(Name printed)	(Signature)	(Pass/Fail)
_____	_____	_____
(Name printed)	(Signature)	(Pass/Fail)
_____	_____	_____
(Name printed)	(Signature)	(Pass/Fail)

Proposal Defense: Pass _____ Fail _____

This form should be placed in candidate's file.

Thesis Defense Form (TDF)

Candidate: _____

Date of Exam: _____

Advisor: _____

Committee Members:

_____	_____	_____
(Name printed)	(Signature)	(Pass/Fail)
_____	_____	_____
(Name printed)	(Signature)	(Pass/Fail)
_____	_____	_____
(Name printed)	(Signature)	(Pass/Fail)
_____	_____	_____
(Name printed)	(Signature)	(Pass/Fail)
_____	_____	_____
(Name printed)	(Signature)	(Pass/Fail)
_____	_____	_____
(Name printed)	(Signature)	(Pass/Fail)

Dissertation Defense: Pass _____ Fail _____

This form should be placed in candidate's file.