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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. The College 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

The Human Physiology program resides in the Department of Health Sciences at Sargent College. Other majors in our department include Health Science (including Global Public Health) and Nutrition, offering degrees in Dietetics, Nutritional Science (pre-med) and Nutrition and Health Promotion (Public Health Nutrition). Our department also offers a minor in Human Physiology and the Public Health minor.

Other undergraduate programs in Sargent College include Health Studies (undergraduate portion of the Doctor in Physical Therapy program), Speech, Language and Hearing Sciences, and Behavior & Health (undergraduate portion of the Occupational Therapy program).

Graduate programs are offered in Human Physiology (MS and PhD), Nutrition, Audiology, Occupational Therapy, Physical Therapy, 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 sources accurate, up-to-date and in agreement with one another, occasional discrepancies may occur and will be resolved by consultation with your Academic Advisor who reports to the 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 inclusive 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 undergraduate and graduate programs leading to the Master of Science (MS) and Doctor of Philosophy (PhD) degrees in Human 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 critical literature reviews, theses, and dissertation research. 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 Human Physiology

Each faculty member has a faculty webpage. Find them in the faculty directory to read more about their education, specialization, research areas, and teaching activity.

https://www.bu.edu/sargent/directory/


Faculty in Human Physiology Program and Areas of Specialization

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Affiliated Faculty

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Professor & Director, Department of Computational Neuroscience  
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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:

**RESPONSIBILITY OF THE COLLEGE TO STUDENTS**

I. In the process of recruiting students, the College and its program should be represented accurately.

II. The admissions procedures should indicate a fair and impartial review of student's credentials.

III. A learning environment should be provided which is safe and conducive to learning.

IV. The curriculum should be consistent with the best practices, philosophies, and patterns within the allied health professions.

V. The College and its programs should attempt to respond to changing patterns and concepts in the process of educating allied health professionals.

VI. The faculty should be competent educators in their respective field.

VII. Procedures used to evaluate students should be fair and clearly presented to the students at the beginning of each course and throughout the program.

VIII. Grievance and appeals procedures for students should exist and be clearly presented to students.

IX. The College should make every effort to ensure that the students will be competent in their professional areas at the completion of program requirements.

**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.

**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.

**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). Students should be familiar with the conduct code found here: [https://www.bu.edu/academics/policies/academic-conduct-code/](https://www.bu.edu/academics/policies/academic-conduct-code/)

**ATTENDANCE**
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.

**ABSENCE FOR RELIGIOUS REASONS**

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.

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.

**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, [https://www.bu.edu/disability/accommodations/](https://www.bu.edu/disability/accommodations/)

**STUDENT GUIDE FOR MAINTAINING ACADEMIC CONTINUITY DURING QUARANTINE OR ISOLATION DUE TO COVID-19**
In the event students need to quarantine or undergo isolation this semester, they are encouraged to take the following steps:

- Reach out to Sargent College, Academic Continuity Coordinator, Sharon Sankey, Assistant Dean of Student Services at ssankey@bu.edu, 617-353-4652 to receive support on making arrangements to keep up with academic work. Students should let Sharon Sankey know any specific concerns they have.
- Review the syllabus for each of their classes to get a sense of what they will miss during their period of quarantine or isolation. Students should ensure they have access to readings and other course materials so that they can keep up with the assignments when they are unable to attend class. Also, please refer to this guide https://www.bu.edu/dos/2021/10/05/student-guide-for-maintaining-academic-continuity-during-quarantine-or-isolation-due-to-covid-19/ Additional resources for students are available at this link
  - https://www.bu.edu/healthway/academic-support-for-students/
  - https://www.bu.edu/erc/resource-guide/
  - https://www.bu.edu/shs/behavioral-medicine/
  - https://www.bu.edu/provost/wellbeingproject/

**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 ASC 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 advisor regarding 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 graduates) are invited to participate in the May commencement ceremony if they have completed all coursework by that date. Commencement materials will be sent to the student by email and postal mail so please be sure to provide BU with your updated contact information. Please check the Sargent College and Boston University websites for important details about the ceremonies or stop by the Academic Services Center (ASC), Room 207, if you have any questions.

**EMERGENCY REGULATIONS**
The information below pertains to lab spills and emergencies. For immediate assistance, please contact:

- For Boston University Facilities and Environmental Health and Safety (EHS) Emergency: 617-353-2105
- For medical assistance related to lab work on both campuses (Research Occupational Health Program (ROHP)): 617-414-7648

For exposure to hazardous materials and spills:

- Notify personnel and isolate the area
- Contain the spill if safe to do so
- Protect nearby drains
- To report the spill, call 617-353-2105

Do not attempt to clean large spills, highly hazardous spills, spills that have migrated to drains or any spill that could result in adverse exposure.

- For immediate medical assistance, call 617-353-2121
- To report lab exposures, call 617-414-7647

For more information regarding hazardous materials spills please visit the EHS spills page ([https://www.bu.edu/ehs/ehs-topics/environmental/spills/](https://www.bu.edu/ehs/ehs-topics/environmental/spills/))

V. Master of Science in Human Physiology

1. COURSE, GRADE AND REGISTRATION REQUIREMENTS

All candidates must successfully complete a minimum of 33 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.

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 33-semester-hour requirement. In addition, students receiving three grades (or a total of 12 credits) below C+ 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 Independent/Directed Study or Research (see Appendix M), 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 ASC 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 Human Physiology can fulfill the degree requirements via one of the following two tracks:

- **Preclinical Accelerated Track**: 33 credits, Critical Literature Review (SAR HS 793), can be completed in one year.

- **Research Track**: 33 credits, research-based thesis, usually completed in two years. Typically, students are enrolled full-time in the Fall and Spring semester of their first-year study, and part-time (less than 12 credits per semester) in the second year of their study dedicating their time to research.

Students in the Preclinical Accelerated Track and Research Track take the same **core curriculum** (17 credits):
NOTE: Parentheses indicate: number of credits ($V =$ variable credits) and the semesters the courses are offered ($F =$ fall, $S =$ spring, $B =$ both semesters)

Core (requirement) courses:

SPH BS 704 Introduction to Biostatistics (3, F) and SAR HS 750 The Physiologist’s Toolbox (2, F)

Plus three of the following Elective (requirement) courses:

SAR HS 534 Physiology of Sex (4, S)
SAR HS 541 Physiology Across the Lifespan (4, F)
SAR HS 542 Exercise Physiology (4, B)
SAR HS 572 Pulmonary Pathophysiology (4, S)
SAR HS 575 Cardiovascular Pathophysiology (4, F)
SAR HS 581 Gross Human Anatomy (4, B)
SAR HS 582 Neuroanatomy and Neurophysiology (4, S)
SAR HS 592 Muscle Physiology (4, S)
CAS BI 552 Molecular Biology I (4, F)
CAS BI 553 Molecular Biology II (4, S)

Electives, selected in consultation with the academic advisor, may be chosen from the list of core requirements or selected from other courses in the department as well as from courses in other departments in Sargent College and other colleges or schools within Boston University, e.g., CAS, ENG, GMS, GRS, SPH, QST, Wheelock College.

NOTE: Numbers in parentheses indicate the number of course credits in semester hours

3. PRECLINICAL ACCELERATED TRACK

The curriculum for candidates in the Preclinical Accelerated Track must include 17 credits of the core curriculum (see above or Appendix B) and SAR HS 793 Critical Literature Review (4 cr, Spring semester)

Students have the option of designing a program emphasizing physiology or neuroscience. This is reflected in the selection of 12 elective credits from a basic or clinical area of specialization and/or electives which may include departmental, college or university course offerings which contribute to the students’ educational objectives and career goals.

See Appendix A through C for more complete information, including requirements for the Critical Literature Review paper.
The overall credit hour requirements for the Master's degree in Human Physiology for the student choosing the Preclinical Accelerated Track is summarized as follows:

Core Curriculum (17 credits) + Specialization & Electives (12 credits) + Critical Literature Review (4 credits) = 33 credit hours Total

4. RESEARCH TRACK

The curriculum for candidates in the Research Track must include 17 credits of the core curriculum (see above or Appendix B) plus

16 credits of SAR HS 791 Directed Study and Research (V, B)

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 serve as the 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 Departmental faculty member with a full-time appointment. When the specific research mentor from a given institution and research lab is finalized between the student and the faculty member, notification should be given to the Human Physiology Program Director, so that the student's records can be updated. A candidate, after successfully completing a thesis project, will 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 advisors must be a full-time member of the departmental faculty.

Candidates selecting the thesis option must include 16 credit hours of SAR HS 791 Directed Study and Research in their total of 33 semester hours. Typically, students would take 4 credits per semester over the course of two years. Normally, 4 credits equate to approximately 10-12 hours/week in time and effort in the lab.

Required steps for completing a thesis:
- Plan project with adviser
- Thesis proposal meeting (with committee members)
• Data collection
• Data analysis
• Oral presentation
• Submission of written thesis

See Appendix D for the MS Thesis grading rubric.

Mugar Library has published a guide for Dissertations and Theses (http://library.bu.edu/theses). These instructions should be carefully studied before initiating preparation of the thesis.

The overall credit hour requirements for the Master's degree in Human Physiology for the student choosing the Research Track with Thesis Option is be summarized as follows:

Core Curriculum (17 credits) + Thesis (16 credits) = 33 total credit hours

VI. Appendices

• APENDIX A: GRADUATE COURSES FOR HUMAN PHYSIOLOGY PROGRAM
• APENDIX B: M.S. CHECKLIST & DEGREE REQUIREMENTS
• APENDIX C: M.S. CRITICAL LITERATURE REVIEW GUIDELINES & GRADING RUBRIC
• APENDIX D: GRADING RUBRIC FOR M.S. THESIS OPTION
• APENDIX E: GUIDELINES FOR INDEPENDENT/DIRECTED STUDY OR RESEARCH
• APENDIX F: ADDITIONAL RESOURCES FOR GRADUATE STUDENTS

APPENDIX A: GRADUATE COURSES FOR HUMAN PHYSIOLOGY

NOTE: Parentheses indicate: number of credits (V = variable credits) and the semesters the courses are offered (F = fall, S = spring, B = both semesters)

A Selection of Elective/Specialization Courses in Human Physiology Program at Sargent College, Boston University
SAR HS 534 Physiology of Sex (4, S)
SAR HS 541 Physiology Across the Lifespan (4, F)
SAR HS 542 Exercise Physiology (4, B)
SAR HS 550 Neural Systems (4, S)
SAR HS 551 Human Nutrition Science
SAR HS 572 Pulmonary Pathophysiology (4, S)
SAR HS 575 Cardiovascular Pathophysiology (4, F)
SAR HS 581 Gross Human Anatomy (4, B)
SAR HS 582 Neuroanatomy/Neurophysiology (4, S)
SAR HS 592 Muscle Physiology (4, S)
SAR HS 710 Graduate Field Experience (V, B)
SAR HS 745 Advanced Regional Anatomy (V, B)
SAR HS 755 Readings in Neuroscience (4, S)
SAR HS 776 Nutritional Epidemiology (4, F)
SAR HS 791 Directed Study/Research (V, B) (for students on a 2-year the research track)
SAR HS 793 Critical Literature Review (4, S)

A Selection of Elective/Specialization Courses in Other Departments at Boston University
SAR HP 565 Biomechanics (4, S)
SAR HP 771 Foundations of Motor Control
SAR HP 782 Advanced Human Movement
SAR PT 520 Functional Anatomy
CAS BI 525 Biology of Neurodegenerative Diseases (4, S)
CAS BI 576 Carcinogenesis (4, S)
GRS BI 655 Developmental Neurobiology
GRS CH 621 Biochemistry I (4, F); three hours lecture, four hours laboratory, one-hour discussion
GRS CH 622 Biochemistry II (S)
GMS AN 810 Systems Neurobiology (4, F)
GMS AN 811 Cognitive Neuroscience (4, S)
GMS AN 702 Neurobiology of Learning & Memory (4, alternating years)
GMS AN 707 Neurobiology of Aging (alternating years)
GMS AN 718 Methods in Neuroscience (4, S)
GMS AN 777 Fundamentals of Cellular and Molecular Neuroscience (4, F)

NOTE: Students are encouraged to explore online other elective/specialization courses that can be found throughout Sargent College as well as other colleges within Boston University, e.g., the Graduate School of Arts and Sciences (GRS), Graduate School of Engineering (ENG), Boston University School of Medicine (BU MED) and School of Public Health (SPH). Students must discuss their course selection with their MS HP faculty advisor or the HP Program Director prior to registering for the courses.
## APPENDIX B: M.S. CHECKLIST & DEGREE REQUIREMENTS

Programs in Human Physiology, Sargent College of Health and Rehabilitation Sciences

### Thesis and Critical Literature Review Track Options:

<table>
<thead>
<tr>
<th>Core Courses</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPH BS 704 Biostatistics (3, B)</td>
<td>3</td>
</tr>
<tr>
<td>SAR HS 750 The Physiologist’s Toolbox (2, F)</td>
<td>2</td>
</tr>
<tr>
<td>plus three (3) of the following Specialization &amp; elective courses:</td>
<td></td>
</tr>
<tr>
<td>SAR HS 534 Physiology of Sex (4, S)</td>
<td>4</td>
</tr>
<tr>
<td>SAR HS 541 Physiology Across the Lifespan (4, F)</td>
<td>4</td>
</tr>
<tr>
<td>SAR HS 542 Exercise Physiology (4, B)</td>
<td>4</td>
</tr>
<tr>
<td>SAR HS 572 Pulmonary Pathophysiology (4, S)</td>
<td>4</td>
</tr>
<tr>
<td>SAR HS 575 Cardiovascular Pathophysiology (4, F)</td>
<td></td>
</tr>
<tr>
<td>SAR HS 581 Gross Human Anatomy (4, B)</td>
<td>4</td>
</tr>
<tr>
<td>SAR HS 582 Neuroanatomy/Neurophysiology (4, S)</td>
<td>4</td>
</tr>
<tr>
<td>SAR HS 592 Muscle Physiology (4, S)</td>
<td>4</td>
</tr>
<tr>
<td>CAS BI 552 Molecular Biology I (4, F)</td>
<td>4</td>
</tr>
<tr>
<td>CAS BI 553 Molecular Biology II (4, S)</td>
<td>4</td>
</tr>
</tbody>
</table>

Core Courses Credits Total: 17 credits

### Research Track: Thesis Option

<table>
<thead>
<tr>
<th>Core Courses</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Courses: SAR HS 750 (2, F) and SPH BS 704 (3, F)</td>
<td>5</td>
</tr>
<tr>
<td>SAR HS 791 Directed Study and Research (V, B)</td>
<td>16</td>
</tr>
<tr>
<td>Specialization &amp; elective courses</td>
<td>12</td>
</tr>
</tbody>
</table>

Total MS HP Credits Total: 33 credits

### Preclinical Accelerated Track: Critical Literature Review Option

<table>
<thead>
<tr>
<th>Core Courses</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAR HS 750 The Physiologist’s Toolbox (F)</td>
<td>2</td>
</tr>
<tr>
<td>SPH BS 704 Biostatistics (B); recommend taking it Fall semester</td>
<td>3</td>
</tr>
<tr>
<td>SAR HS 793 Critical Literature Review (4, S)</td>
<td>4</td>
</tr>
<tr>
<td>Specialization &amp; elective courses</td>
<td>24</td>
</tr>
</tbody>
</table>

Total MS HP Credits Total: 33 credits
• Maximum 8 credits transfer from another educational institution
• No grade less than C will be counted toward the MS degree
• Students receiving 12 credits (3 grades) below C+ will be terminated from MS HP program
• Minimum GPA: 3.0 (B) required for graduation
• Thesis track: 16 credits SAR HS 791 Directed Study/Research
• Critical Literature Review track: 4 credits SAR HS793 Critical Literature Review
• NOTE: At least 16 of the 33 credits must be in courses offered by the Programs in Human Physiology, College of Health and Rehabilitation Sciences: Sargent College
APPENDIX C: M.S. CRITICAL LITERATURE REVIEW GUIDELINES

SAR HS 793 Critical Literature Review in Human Physiology (4 credits, Spring semester)

Note: Students must meet with their faculty advisor to discuss their critical literature review topic and are strongly encouraged to initiate this discussion during the first semester (fall) of their study.

- **Objective:**
  Production of a critical literature review following the in-depth review, analysis, and synthesis of a research-related topic of scientific and/or professional relevance. The student, in consultation with a faculty mentor supervising his/her work, is responsible for development and completion of the paper.

- **Choosing your topic:**
  In fall semester, identify a topic of interest and identify a faculty mentor. Please make an appointment with the faculty member you will be working with on your review. Come prepared with ideas for your topic. Be prepared to discuss these with your professor, who can provide guidance on resources, the scope and/or direction of your review, as necessary.

- **Conduct an initial literature search in fall semester:**
  - Please see the following webpage for assistance in researching and writing your literature review [http://library.bu.edu/systematic-reviews-support](http://library.bu.edu/systematic-reviews-support)
  - Prepare an outline or table of contents
  - Make an appointment with your faculty advisor to review your initial outline or table of contents. Your advisor will make suggestions for areas that may need further background information (i.e., additional sources) or topics that are more tangential and need less attention.
  - It is recommended that you, the student, meet with their advisor to discuss the literature review within the third week of the first fall semester.

- **Write your review in spring semester:**
  - Based on your literature search, by the time you begin to write your review, you should have a fairly good idea of how it is going to be organized and where you will end, i.e., your conclusions and recommendations for future research.
  - Set up appointment dates to meet with your professor to review initial and 2nd drafts of your manuscript.
  - The recommended date to turn in your completed manuscript (subject to negotiation with the faculty member supervising work is:
    - For Spring (May) graduation: April 15
- For Winter (January) graduation: November 15 (if your May graduation is delayed)

- **Organization of review:**
  - **Title page:** with title, your name, credentials & email
  - **Abstract:**
    - Max 250 words, unstructured
    - Starting your paper by writing an initial draft of your abstract can be a good way to organize your manuscript, as it forces you to think through the organization of your paper. It is much easier to write when you know where you are headed!
  - **Introduction:** (1-3 pages)
    - Introduce your review topic.
    - Establish context and significance.
    - Describe to the reader the organization of the document.
  - **Extensive Literature Review:** (15-20 pages)
    Your literature review must be comprehensive and up-to-date. Guide your reader through the review with appropriate headings and sub-headings. Feel free to use figures (properly cited) to clarify your review. Keeping your conclusions in mind should help guide your writing.
  - **Summary and Conclusions:** (1-3 pages)
    Thoroughly but succinctly summarize your findings. As science is an ongoing process, your review will likely have revealed implications for suggested future research directions. Your conclusions should include your suggestions for future research.
  - **References:** (minimum of 20-40 references are expected)
    Provide a bibliography of all references cited. You may use either APA 7th Edition Style or AMA Style to format your citations.
    Examples of APA citations can be found here: [https://apastyle.apa.org/](https://apastyle.apa.org/)
    Examples of AMA citations can be found here: [https://guides.lib.uw.edu/hsl/ama/home](https://guides.lib.uw.edu/hsl/ama/home)

- **Additional Information:**
1. 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*.

2. One soft-bound, final copy must be submitted to the department and an electronic copy is also required for the advisor.

3. Successful completion of the Critical Literature Review (SAR HS 793) requires the approval of the faculty advisor and/or other reviewers, if appropriate.

4. The Critical Literature Review (SAR HS 793) will be graded as Pass or Fail.

5. Students are expected to conduct themselves responsibly and professionally, communicating clearly with their professor, arranging meetings, completing tasks in the agreed upon time frame, etc.

6. Formatting Guidelines:
   - Times New Roman 12-point font
   - Double spaced
   - 1” margin on all sides
   - Pages numbered on bottom
   - Title page with paper # and title, date due, student’s name and BU email address
   - 20-25 pages exclusive of title page and references
## APPENDIX C:
Critical Literature Review Grading Rubric (100 points total)

<table>
<thead>
<tr>
<th></th>
<th>EXCELLENT</th>
<th>GOOD</th>
<th>FAIR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ABSTRACT</strong></td>
<td>4.5 – 5 pts</td>
<td>3.5 – 4.4 pts</td>
<td>0 – 3.4 pts</td>
</tr>
<tr>
<td>• INCLUDES CONCISE REVIEW OF TOPIC.</td>
<td></td>
<td>• INCLUDES CONCISE REVIEW OF TOPIC.</td>
<td>• MISSING ELEMENTS AND POORLY ORGANIZED.</td>
</tr>
<tr>
<td>• CONCISELY SUMMARIZES CONCLUSIONS AND IMPLICATIONS.</td>
<td></td>
<td>• CONCLUSIONS &amp; IMPLICATIONS WEAK OR LACKING CONTEXT.</td>
<td>• CONCLUSIONS &amp; IMPLICATIONS EITHER NOT INCLUDED OR WEAK.</td>
</tr>
<tr>
<td><strong>INTRODUCTION</strong></td>
<td>4.5 – 5 pts</td>
<td>3.5 – 4.4 pts</td>
<td>0 – 3.4 pts</td>
</tr>
<tr>
<td>• STRONG INTRODUCTION TO REVIEW TOPIC.</td>
<td></td>
<td>• INTRODUCES REVIEW TOPIC.</td>
<td>• WEAK INTRODUCTION TO REVIEW TOPIC.</td>
</tr>
<tr>
<td>• CLEARLY ESTABLISHES CONTEXT AND SIGNIFICANCE.</td>
<td></td>
<td>• WEAK FORMULATION OF CONTEXT AND SIGNIFICANCE.</td>
<td>• LACKS PREVIEW OF DOCUMENT ORGANIZATION.</td>
</tr>
<tr>
<td>• CLEAR PREVIEW OF ORGANIZATION OF DOCUMENT.</td>
<td></td>
<td>• WEAK PREVIEW OF DOCUMENT ORGANIZATION.</td>
<td></td>
</tr>
<tr>
<td><strong>LIT. REVIEW</strong></td>
<td>49.5 – 55 pts</td>
<td>38.5 – 49.4 pts</td>
<td>0 – 38.4 pts</td>
</tr>
<tr>
<td>• COMPREHENSIVE &amp; ACCURATE REVIEW.</td>
<td></td>
<td>• REVIEW STRONG, THOUGH MAY BE MISSING IMPORTANT ELEMENTS OR EMPHASIS MISPLACED.</td>
<td>• WEAK REVIEW THAT IS MISSING IMPORTANT ELEMENTS.</td>
</tr>
<tr>
<td>• STRONG SYNTHESIS OF EXISTING KNOWLEDGE.</td>
<td></td>
<td>• ANALYSIS &amp; EVALUATION OF EXISTING RESEARCH DEMONSTRATES LESS COMPETENCE WITH MATERIAL.</td>
<td>• DEMONSTRATES POOR COMPREHENSION OF EXISTING RESEARCH.</td>
</tr>
<tr>
<td>• CRITICALLY ANALYZES AND EVALUATES OTHERS’ FINDINGS.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SUMMARY</strong></td>
<td>4.5 – 5 pts</td>
<td>3.5 – 4.4 pts</td>
<td>0 – 3.4 pts</td>
</tr>
<tr>
<td>• SUMMARY IS COMPREHENSIVE AND SUCCINCT.</td>
<td></td>
<td>• SUMMARY IS COMPREHENSIVE AND SUCCINCT.</td>
<td>• SUMMARY MISSING ELEMENTS AND POORLY ORGANIZED.</td>
</tr>
<tr>
<td>• CONCLUSIONS AND IMPLICATIONS FOLLOW LOGICALLY FROM REVIEW.</td>
<td></td>
<td>• CONCLUSIONS AND IMPLICATIONS LESS OBVIOUSLY LOGICAL EXTENSIONS FROM REVIEW.</td>
<td>• WEAK OR MISSING CONCLUSIONS AND ILLOGICAL OR MISSING IMPLICATIONS.</td>
</tr>
<tr>
<td><strong>REFERENCES</strong></td>
<td>4.5 – 5 pts</td>
<td>3.5 – 4.4 pts</td>
<td>0 – 3.4 pts</td>
</tr>
<tr>
<td>• COMPREHENSIVE AND APPROPRIATE REFERENCES.</td>
<td></td>
<td>• MISSED SOME SIGNIFICANT REFERENCES; SOME INAPPROPRIATE REFERENCES INCLUDED.</td>
<td>• MISSING MANY SIGNIFICANT REFERENCES; MOST REFERENCES INAPPROPRIATE.</td>
</tr>
<tr>
<td>• CORRECT CITATION METHOD IN MANUSCRIPT BODY.</td>
<td></td>
<td>• CORRECT CITATION METHOD IN MANUSCRIPT BODY WITH SOME ERRORS</td>
<td>• INCORRECT CITATION METHOD IN MANUSCRIPT BODY.</td>
</tr>
<tr>
<td>• CORRECTLY FORMATTED REFERENCE LIST.</td>
<td></td>
<td></td>
<td>• INCORRECTLY FORMATTED REFERENCE LIST.</td>
</tr>
<tr>
<td>FORMATTING</td>
<td>• Correctly formatted reference list with some errors.</td>
<td>4.5 – 5 pts</td>
<td>3.5 – 4.4 pts</td>
</tr>
<tr>
<td>---</td>
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</tr>
<tr>
<td></td>
<td>• Correctly followed all formatting guidelines.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Turned in at agreed upon deadlines.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Did not follow all formatting guidelines.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Turned in at agreed upon deadlines.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Did not follow all formatting guidelines.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Turned in late.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROFESSIONALISM</td>
<td>• Took initiative.</td>
<td>9 – 10 pts</td>
<td>7 – 9 pts</td>
</tr>
<tr>
<td></td>
<td>• Maintained clear lines of communication.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Took responsibility for actions.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Usually took initiative.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Usually maintained clear lines of communication.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Took responsibility for actions.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Rarely took initiative.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Rarely maintained clear lines of communication.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Rarely took responsibility for actions.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WRITING</td>
<td>• Organization is exceptionally clear.</td>
<td>9 – 10 pts</td>
<td>7 – 9 pts</td>
</tr>
<tr>
<td></td>
<td>• Writing cohesive.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Organization and writing good, though not exceptional.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Poorly organized and not well written.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>90 – 100 pts</td>
<td>70 – 89 pts</td>
<td>0 – 69 pts</td>
</tr>
</tbody>
</table>
## APPENDIX D: GRADING RUBRIC FOR MS THESIS

Programs in Human Physiology, Sargent College of Health and Rehabilitation Sciences

See: [http://library.bu.edu/theses](http://library.bu.edu/theses) for thesis formatting guidelines.

Your thesis will be graded according to the following rubric:

### Human Physiology MS Thesis Grading Rubric (100 points total)

<table>
<thead>
<tr>
<th></th>
<th>EXCELLENT</th>
<th>GOOD</th>
<th>FAIR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Abstract</strong></td>
<td>7.1 – 8 pts</td>
<td>6 – 7 pts</td>
<td>0 – 5.9 pts</td>
</tr>
<tr>
<td><strong>Background &amp; Significance</strong></td>
<td>16.1 – 18 pts</td>
<td>12 – 16 pts</td>
<td>0 – 11.9 pts</td>
</tr>
<tr>
<td><strong>Research Design &amp; Methods</strong></td>
<td>16.1 – 18 pts</td>
<td>12 – 16 pts</td>
<td>0 – 11.9 pts</td>
</tr>
<tr>
<td><strong>Results &amp; Discussion</strong></td>
<td>16.1 – 18 pts</td>
<td>12 – 16 pts</td>
<td>0 – 11.9 pts</td>
</tr>
<tr>
<td><strong>WRITING</strong></td>
<td>9.1 – 10 pts</td>
<td>8 – 9 pts</td>
<td>0 – 7.9 pts</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------</td>
<td>-----------</td>
<td>-------------</td>
</tr>
<tr>
<td><strong>ORGANIZATION</strong></td>
<td>EXCEPTIONALLY CLEAR.</td>
<td>ORGANIZATION AND WRITING GOOD, THOUGH NOT EXCEPTIONAL.</td>
<td>POORLY ORGANIZED AND NOT WELL WRITTEN.</td>
</tr>
<tr>
<td><strong>WRITING</strong></td>
<td>COHESIVE.</td>
<td>COHESIVE.</td>
<td>COHESIVE.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>PROFESSIONALISM</strong></th>
<th>9.1 – 10 pts</th>
<th>8 – 9 pts</th>
<th>0 – 7.9 pts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOOK INITIATIVE.</strong></td>
<td>MAINTAINED CLEAR LINES OF COMMUNICATION.</td>
<td>USUALLY TOOK INITIATIVE.</td>
<td>RARELY TOOK INITIATIVE.</td>
</tr>
<tr>
<td><strong>TOOK RESPONSIBILITY FOR ACTIONS.</strong></td>
<td></td>
<td>USUALLY MAINTAINED CLEAR LINES OF COMMUNICATION.</td>
<td>RARELY MAINTAINED CLEAR LINES OF COMMUNICATION.</td>
</tr>
<tr>
<td><strong>WRITING COHESIVE</strong></td>
<td></td>
<td>ANIZATION EXCEPTIONALLY CLEAR.</td>
<td>RARELY TOOK RESPONSIBILITY FOR ACTIONS.</td>
</tr>
<tr>
<td><strong>TOOK RESPONSIBILITY FOR ACTIONS.</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>ORAL PRESENTATION</strong></th>
<th>16.1 – 18 pts</th>
<th>12 – 16 pts</th>
<th>0 – 11.9 pts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PREPARED, POISED AND CONFIDENT.</strong></td>
<td>TALK WELL STRUCTURED TO ENHANCE AUDIENCE COMPREHENSION.</td>
<td>SOMEWHAT LACKING IN PREPARING OR CONFIDENCE.</td>
<td>CLEARLY LACKED PREPARATION &amp; CONFIDENCE/POISE.</td>
</tr>
<tr>
<td><strong>RESPONDS PROMPTLY AND APPROPRIATELY TO QUESTIONS.</strong></td>
<td></td>
<td>TALK FAIRLY WELL ORGANIZED.</td>
<td>POORLY ORGANIZED TALK THAT CONFUSES AUDIENCE.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DIFFICULTY RESPONDING TO SOME QUESTIONS.</td>
<td>CAN’T ANSWER MOST QUESTIONS.</td>
</tr>
</tbody>
</table>

| **TOTAL** | 90 – 100 pts | 70 – 89 pts | 0 – 69 pts |

Total score must be >70% for a passing grade.
E: GUIDELINES FOR INDEPENDENT/DIRECTED STUDY OR RESEARCH

Programs in Human Physiology, Sargent College of Health and Rehabilitation 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. To ensure a meaningful experience for the student, faculty member, or the site supervisor 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:

SAR HS 791 Directed Study and Research

- Prior to initiation of directed study/research in SAR HS 791, the student must:
  - complete a Declaration of Intent (Form DSR) obtainable from the departmental administrator or student’s academic advisor
  - discuss the project or directed study completely with the faculty member who is responsible for overseeing the student’s project
  - if a third party is involved, e.g., a clinician or researcher at another site, the project must be discussed with them and approved
  - sign and obtain signatures from all parties involved
  - return complete DSR form to advisor and one to departmental administrator for student's record

- If the research (SAR HS 791) 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 Declaration of Intent form (DSR) is not to be used in the case of direct thesis.
F: ADDITIONAL RESOURCES FOR GRADUATE STUDENTS

General Resources:
https://www.bu.edu/grad/

Cross-Registration/Consortium:
https://www.bu.edu/reg/registration/consortia/

Laboratory Safety Trainings:
http://www.bu.bioraft.com

Responsible Conduct of Research (RCR), CITI and IRB Procedures:
http://www.bu.edu/researchsupport/training-how-to/responsible-conduct-of-research-training/

BU and Sargent Research Administration:
http://www.bu.edu/sargent/research/research-fundingadministration/

BU Sexual Misconduct Policy/Title IX:
http://www.bu.edu/safety/sexual-misconduct/reporting/

Personal Counseling:
https://www.bu.edu/shs/behavioral-medicine/

BU Office of the Ombuds:
https://www.bu.edu/ombuds/