BIOMEDICAL ENGINEERING AND PHYSIOLOGY (BMEP) – EMPLOYEE-PROFESSIONAL MASTERS

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Employee Master's Degree

The Employee Master's Degree track in Biomedical Engineering and Physiology is open only to permanent employees of Mayo Clinic. Admission to the program requires an interview with the program director.

Application

Candidates must complete an Employee Master's Degree Application form. This form is available on the MCGSBS Master's Programs intranet site. Supporting documents include transcripts from previous colleges and three letters of recommendation - one preferred from your direct supervisor/manager.

Eligibility

Applicants must have a current Mayo Clinic appointment. Although more common for allied health staff, it is open to all employees. Enrollment is restricted to permanent Mayo employees and is available at all three sites: Arizona, Florida, and Rochester. Temporary roles are not eligible if you were hired with an appointment end date, e.g. visiting clinicians and research trainees are not eligible.

Applicants must have received a bachelor's degree from an accredited college or university, must have taken appropriate undergraduate science courses to adequately prepare for the Master's program, must have a minimum undergraduate grade point average that demonstrates a record of academic excellence. The employee's supervisor must endorse in writing the application of the employee and commit to allowing time to attend scheduled coursework.

Time Requirement

Time to completion can vary by student, but all requirements for the Master's degree must be completed within five years. The five-year period begins on the start date of the term the student is appointed to. Permanent Mayo employees whose Mayo employment terminates are required to notify MCGSBS; their MCGSBS appointments will also end.

Registration Requirement

At least 75% of the coursework for the Master's degree must be completed in MCGSBS.

Minimum Credit Requirements

Students must complete a minimum of 45 credits, including MGS 6000 Responsible Conduct of Research. Six of the credits in the track must be didactic credits. The selection of the courses to be used to meet these requirements will be determined by the student and the track program director.

Transfer Credits

A total of 9 didactic credits may be transferred into the Employee Master's Program. For more details, see the Credit Transfer Policy on the MCGSBS Policies and Procedures intranet site.

Course Requirements

A total of **45 credits** with maintenance of at least a 3.0 GPA are required for graduation.

Code	Title	Hours
MGS Courses		
MGS 6000	Responsible Conduct of Research	1
MGS 5050	Critical Thinking and Scientific Writing	2
MGS 5051	Critical Thinking and Scientific Writing, Part II	1
MGS 6400	Master's Scholarly Review Article (Final Project)	6
Track Requirements		
BME 5010	Integrative Physiology of Health and Disease	6
BME 5020	Quantitative Biomedical Imaging and Signal Processing	6
BME 5030	Biomedical Applications of Engineering Principles	6
BME 6600	Physiology & Biomedical Engineering Seminars	1
BME 6650	Biomedical Engineering & Physiology Journal Club	1
Advanced Coursework		
15 credits Advanced Coursework [1]		15
Total Hours		**45**

[1] Fifteen elective credits should be selected after consultation between the student and the program director.

Program milestones are included in the Academic Progress and Graduation Requirements for Masters Programs Policy. See below for BMEP-specific program highlights and instruction.

Written Qualifying Exam

The written qualifying examination (WQE) for the Employee Master's Degree in Biomedical Engineering and Physiology is comprised of a significance section (as in an F-award application) covering the topics of clinical need, normal physiology and disease pathophysiology, current clinical deficiencies, prior research successes and failures and future directions. The topic of the proposed WQE is due on November 1st for review and approval by the BMEP Track Education Committee. Final submission of the full WQE is due by March 1st the following year. A form signed by the Track Program Director will be submitted to MCGSBS upon successful completion of the written qualifying exam.

Employee Master's Advisory Committee

In consultation with the Program Director, the student will select a Master's degree mentor within the first year of the program. The mentor must have graduate school privileges and must not be the employee's direct supervisor. In consultation with the Program Director and the Master's degree mentor, the student will select an Employee Master's Advisory Committee comprised of four faculty members. This committee must include, at a minimum, either the Program Director or the Associate Program Director. This Committee should meet at least every six months to assess the student's progress and provide guidance regarding the

project. A form indicating the composition of the committee must be submitted to MCGSBS.

Master's Project Review

The Master's scholarly review article (final project) forms the central element of the Master's degree. The student should enroll in MGS 6400 Master's Scholarly Review Article (Final Project) during the final quarter of tenure in the program in order to finalize the project. In general, the project will take the form of a substantial and scholarly review of the current field related to a specific topic of interest to the student. The final form of the scholarly review article (final project) must be approved in advance by the Biomedical Engineering and Physiology Education Committee. This document must be written in close consultation with the Master's degree mentor and the Employee Master's Advisory Committee, and must be submitted to the Employee Master's Advisory Committee for review at least one month prior to the final review date.

Master's Scholarly Review Article (Final Project)

The final evaluation of the scholarly review article (final project) is the final committee meeting. Prior to this meeting the committee will carefully review, edit, and critique the scholarly review article (final project) and will provide any changes to the student during the meeting. Committee members may orally examine the student's general and specific knowledge. Three of four committee members must vote to pass the student and a form signed by all committee members must be submitted to MCGSBS immediately upon completion of the review.

Final Project Corrections

Significant deficits in the scholarly review article (final project) will require the student to revise and resubmit the document to the committee within 30 days of the presentation date.

This is a suggested sequence based on a summer term start. Individual course plans may vary depending on true start date, program, employment/ personal commitments, and research interests. Be sure to confirm you have met your requirements using your degree planning tool. Course offerings may vary slightly. Current course offerings are posted in the course catalog.

The BMEP Employee Master's Program is laid out for 5 years maximally. If students are able to manage their employment with a more rigorous schedule it is possible to finish in less than 5 years.

** BMEP 5010, 5020, and 5030 are interchangeable for first second or third year, and dependent on the student's preferred sequencing.*

***BMEP 6600 begins first year Summer Quarter. Registration for BMEP Seminar should be during the quarter you intend to present, and you will be held accountable for attendance during this full term. Outside of your registered quarter you will be asked to attend as often as allowable by your employment supervisor.*

****BMEP 6650 may be taken in the Fall or Winter Quarter of the second year, not both.*

*****MGS 6400 is the final review article and should be registered for in the quarter in which it will be presented to the committee.*

Code	Title	Hours
First Year - Summer Term		
MGS 6000	Responsible Conduct of Research	1
BME 6600	Physiology & Biomedical Engineering Seminars	1

Code	Title	Hours
First Year - Fall Term		
BME 6600	Physiology & Biomedical Engineering Seminars	1
BME 5010	Integrative Physiology of Health and Disease	6

Code	Title	Hours
First Year - Winter Term		
BME 6600	Physiology & Biomedical Engineering Seminars	1
BME 5011		

Code	Title	Hours
First Year - Spring Term		
BME 6600	Physiology & Biomedical Engineering Seminars	1
BME 5012		

Code	Title	Hours
Second Year - Summer Term		
BME 6600	Physiology & Biomedical Engineering Seminars	1
MGS 5050	Critical Thinking and Scientific Writing	2

Code	Title	Hours
Second Year - Fall Term		
BME 6600	Physiology & Biomedical Engineering Seminars	1
BME 5020	Quantitative Biomedical Imaging and Signal Processing	6
BME 6650	Biomedical Engineering & Physiology Journal Club	1

Code	Title	Hours
Second Year - Winter Term		
BME 6600	Physiology & Biomedical Engineering Seminars	1
BME 5021		
BME 6650	Biomedical Engineering & Physiology Journal Club	1

Code	Title	Hours
Second Year - Spring Term		
BME 6600	Physiology & Biomedical Engineering Seminars	1
BME 5022		

Code	Title	Hours
Third Year - Summer Term		
BME 6600	Physiology & Biomedical Engineering Seminars	1
BME 5030	Biomedical Applications of Engineering Principles	6
Electives		1-3

Code	Title	Hours
Third Year - Fall Term		
BME 6600	Physiology & Biomedical Engineering Seminars	1
BME 5031		
MGS 5051	Critical Thinking and Scientific Writing, Part II	1
Electives		1-3

Code	Title	Hours
Third Year - Spring Term		
BME 6600	Physiology & Biomedical Engineering Seminars	1
BME 5032		
Electives		1-3

Code	Title	Hours
Fourth Year - Summer Term		
BME 6600	Physiology & Biomedical Engineering Seminars	1
Electives		1-3

Code	Title	Hours
Fourth Year - Fall Term		
BME 6600	Physiology & Biomedical Engineering Seminars	1
Electives		1-3

Code	Title	Hours
Fourth Year - Winter Term		
BME 6600	Physiology & Biomedical Engineering Seminars	1
Electives		1-3

Code	Title	Hours
Fourth Year - Spring Term		
BME 6600	Physiology & Biomedical Engineering Seminars	1
Electives		1-3

Code	Title	Hours
Fifth Year - Summer Term		
BME 6600	Physiology & Biomedical Engineering Seminars	1

Code	Title	Hours
Fifth Year - Fall Term		
BME 6600	Physiology & Biomedical Engineering Seminars	1

Code	Title	Hours
Fifth Year - Winter Term		
BME 6600	Physiology & Biomedical Engineering Seminars	1

Code	Title	Hours
Fifth Year - Spring Term		
BME 6600	Physiology & Biomedical Engineering Seminars	1
MGS 6400	Master's Scholarly Review Article (Final Project)	6