# UNIVERSITY OF MIAMI
## COLLEGE OF ENGINEERING
### DEPARTMENT OF BIOMEDICAL ENGINEERING

**SUMMARY OF RULES AND GUIDELINES FOR THE DOCTOR OF PHILOSOPHY PROGRAM in BIOMEDICAL ENGINEERING 2015-2016**

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1. INTRODUCTION
This manual summarizes the rules and guidelines for students enrolled in the PhD program at the University of Miami Department of Biomedical Engineering. Students must also familiarize themselves with the relevant sections of the University of Miami Graduate Bulletin which describes the general requirements of the College of Engineering and the Graduate School (www.miami.edu/grad) and includes the Graduate Student Code of Ethics. In case of conflict, the University and College rules override the following guidelines.

It is the responsibility of the student to be informed of all regulations and procedures required by the Graduate School (www.miami.edu/grad) and/or the University of Miami College of Engineering (www.miami.edu/coe). In no case will a regulation be waived or an exception be granted because a student pleads ignorance of the regulation or asserts that he/she was not informed of it by an advisor or other authority.

2. PROGRAM OBJECTIVES
The goal of the PhD program in Biomedical Engineering at the University of Miami is to train students for independent research and innovation in biomedical engineering. The program is designed to prepare graduates for careers in academia, industrial research and development, or government (FDA, US Patent Office).

3. AREAS OF STUDY
Doctoral students at the University of Miami Department of Biomedical Engineering may specialize in one or several of the following areas of graduate study:
- Biomedical instrumentation and devices
- Applications of medical imaging systems
- Diagnostic and therapeutic systems
- Biomechanics, biofluid dynamics
- Biomimetic scaffolds and hybrid biomaterials
- Fluidic microsystems, microfluidics, and nanofluidics
- Cell and tissue engineering and regenerative medicine
- Biomedical signal and image processing
- Rehabilitation, brain-computer interface, and neural engineering
- Biomedical optics and lasers
- Medical physics and engineering
- Nanotechnology and drug delivery
- Immunoengineering

PhD students conduct research at the Department of Biomedical Engineering and at clinical departments and research centers at the School of Medicine, including the Bascom Palmer Eye Institute, the Miami Project to Cure Paralysis, the Diabetes Research Institute, the University of Miami Ear Institute, Biomedical Nanotechnology Institute, the Departments of Pathology, Radiology, Radiation Oncology, Otolaryngology, and Surgery, and the Miami Veterans Administration Research Service. Many of our doctoral students work closely with physicians to develop and investigate new therapies, devices, and technologies that address real-world clinical problems.
4. ADMISSION REQUIREMENTS

A list of the qualifications and documentation required for admission to the PhD program in Biomedical Engineering can be found in the Graduate Bulletin. The minimum criteria for admission are summarized in Table 1. Exceptions to these minimum requirements are made only by special request of a faculty member, with the approval of the Department Chairperson and the College of Engineering Associate Dean for Graduate Studies.

In general, the Department admits three types of students to its PhD program:

a. Students with MS degrees in Biomedical Engineering or related science and engineering fields.

b. Students with MD degrees with undergraduate degrees in sciences or engineering.

c. Highly qualified students with BS degrees in engineering or sciences.

Students admitted with non-engineering degrees are generally given conditional admission and required to take additional undergraduate courses in engineering, physics, and/or mathematics depending on their previous coursework, as specified in the admission letter. The requisite courses will be prescribed by the Department Chair or Graduate Program Director during the first advising session.

The PhD program in biomedical engineering is also a degree-granting program of the University of Miami’s MD-PhD program.

Internal M.S. students (thesis or non-thesis) who wish to pursue a doctoral degree can transfer from the MS program to the doctoral degree program under the following general requirements:

a. Submission of an application for admission to the PhD program. The application must be submitted on paper to the BME Department Chair.

b. Submission of a letter of support by a faculty member who agrees to serve as the student's Ph.D. dissertation advisor.

c. Approval of the application by the Department's Graduate Admissions Committee.

5. REQUIREMENTS FOR THE AWARD OF THE DOCTOR OF PHILOSOPHY DEGREE

General requirements: The general requirements for award of the Doctor of Philosophy degree include:

a. Completion of a minimum of 60 course credits beyond the BS degree.

b. Satisfactory completion of a qualifying screening examination.

c. The submission, oral defense, and approval of a dissertation proposal.

d. The submission, oral defense and approval of a dissertation.

e. Completion of the publication requirements.

8 year rule: All work, including credit transferred from other institutions, must be completed within 8 years of the time of admission to graduate work, and/or within four years of approval of the dissertation proposal. At these time limits the program director and/or Dean of the Graduate School may notify the student that the time to complete the degree requirements for the Ph.D. has elapsed. Exceptions may be granted by the Dean of the Graduate School at the request of the Graduate Program Director.
**Table 1:** Typical requirements for admission to the PhD program in Biomedical Engineering. Direct admission to the Ph.D. track by students holding B.S. degrees is limited to students with exceptional credentials. (1) Graduate GPA; (2) Undergraduate GPA; (3): Scores are provided on the revised GRE scale. Scores of 305 and 310 correspond to 1100 and 1200 on the old scale.

Students admitted with non-engineering degrees are generally accepted conditionally, with the requirement to complete a set of undergraduate courses in engineering and/or mathematics before gaining full admission into the PhD program.

<table>
<thead>
<tr>
<th>Program</th>
<th>Field</th>
<th>GPA</th>
<th>GRE (Q+V)</th>
<th>Comment</th>
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<tbody>
<tr>
<td>MS to PhD</td>
<td>BME, Other engineering or</td>
<td>3.5</td>
<td>305</td>
<td>MS to PhD program. Includes graduates of BS/MS (5 year) programs</td>
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<tr>
<td></td>
<td>science</td>
<td>(1)</td>
<td>(3)</td>
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<tr>
<td>MD to PhD</td>
<td>-</td>
<td>-</td>
<td>305</td>
<td>MD to PhD program. Requires undergraduate degree in science or engineering.</td>
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<td>(1)</td>
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<tr>
<td>BS to PhD</td>
<td>BME, Other engineering or</td>
<td>3.5</td>
<td>310</td>
<td>Direct BS to PhD program</td>
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<tr>
<td></td>
<td>science</td>
<td>(2)</td>
<td>(3)</td>
<td></td>
</tr>
<tr>
<td>Transfer from MS</td>
<td>Must be MS student at UM</td>
<td>3.5</td>
<td>305</td>
<td>Transfer from MS program to PhD for internal MS students. Requires:</td>
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<tr>
<td>to PhD</td>
<td>BME</td>
<td>(1)</td>
<td>(3)</td>
<td>a. Submission of an application for admission to the PhD program. The</td>
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<td>application must be submitted on paper to the BME Department Chair.</td>
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<td>b. A letter of support by a faculty member who agrees to serve as the</td>
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<td>student's Ph.D. dissertation advisor</td>
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<td>c. Approval of the application by the Department’s Graduate Admissions</td>
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<td></td>
<td>Committee</td>
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<tr>
<td>MD-PhD</td>
<td>Must be enrolled in the MD-PhD program at UM.</td>
<td>-</td>
<td>GRE is waived (MCAT is required)</td>
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<td>Students must satisfy the admission requirements of the University of</td>
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<td>Miami’s MD-PhD program.</td>
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<td>Students who are enrolled in the MD-PhD program and who have an</td>
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<td>undergraduate or graduate degree in engineering can choose BME as their</td>
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<td>degree-granting program.</td>
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**Minimum grades:** An average of B (3.0) is required for a graduate degree, and no “D” credit may be counted toward the degree. A C- is the lowest passing grade for graduate students. A student may repeat a course in which a failing grade was earned, but the repetition of the course will not eliminate the previous grade from the record. A course may be repeated only once unless written authorization is provided by the Dean of the Graduate School. All grades are included in the computation of the quality point average. If a course in which an unsatisfactory grade (as determined by the program advisor) was earned is repeated and the repeat grade is a “C-” or higher, the number of credits required for graduation will be increased by the number of credits repeated.

6. CURRICULUM

6.1. Objectives
The PhD curriculum was designed to provide the technical and intellectual skills required to identify and solve complex scientific or technical problems at the interface of engineering and medicine or biology. The curriculum combines advanced coursework which provides depth in a specific area of concentration, with independent original research in one of the laboratories of the faculty from the Department of Biomedical Engineering or the School of Medicine.
6.2. Credit requirements
The credit requirements are summarized in Table 2. Students admitted with non-engineering degrees are generally accepted conditionally, with the requirement to complete a set of undergraduate courses in engineering and/or mathematics before gaining full admission into the PhD program.

**MS to PhD:** Students admitted with an MS degree must complete at least 18 credits of graduate level course work followed by at least 12 credits of dissertation work. A minimum of 6 course credits must be at the 700 level. A maximum of 6 credits can be taken outside the Department of Biomedical Engineering, with approval of the Graduate Advisor. Students who wish to take additional classes outside the Department must request advance permission of the Department Chair or Graduate Program Director.

**BS to PhD:** Students admitted to the PhD program with a BS degree must complete a minimum of 42 credits of graduate level course work followed by a least 18 credits of dissertation work. A minimum of 12 course credits must be at the 700 level. A maximum of 12 credits can be taken outside the Department of Biomedical Engineering, with approval of the Graduate Advisor. Students who wish to take additional classes outside the Department must request advance permission of the Graduate Program Director or Department Chair.

After completion of the Departmental MS requirements, students enrolled in the direct B.S to Ph.D. track may apply for an M.S. degree.

**MD-PhD students:** Must complete a total of 42 credits of graduate level course work followed by 18 credits of dissertation work. Up to 15 credits of work completed during the first two years of medical school may be counted towards the 42 course credit requirement (See Section 6.5). A minimum of 12 course credits must be at the 700 level. A maximum of 12 credits can be taken outside the Department of Biomedical Engineering, with approval of the Graduate Advisor. These 12 credits include any PIB 631 credits that were counted towards the BME degree requirement, and any other non-BME courses.

6.3. Course selection
Doctoral students select a course of study together with the graduate advisor and/or with their mentor based on their own needs or interests. Students can choose from any of the graduate course offerings, as long as they satisfy the general course requirements and the course prerequisites. Students enrolled in the Medical Physics Program must complete specific course requirements (see Section 6.6 below).

6.4. Required core courses
There are four core graduate courses: Unified Medical Sciences I/II/III (BME 601/602/603, 3 credits each) and a Graduate Seminar course (BME 780, 0 credit). The three courses of the Unified Medical Sciences sequence are designed to provide a basic understanding of human physiology and anatomy and cellular and molecular biology.

All PhD students must complete the Graduate Seminar course (BME 780, 0 credit). This requirement cannot be waived. Students must enroll in the Graduate Seminar the first time it is offered after they pass the screening examination.
All BME PhD students are required to take at least two of the three Unified Medical Sciences courses, with the following exceptions:
- Students enrolled in the MD-PhD program (See Section 6.5) and students with an MD from a medical school accredited by the World Health Organization are exempted from taking these 3 courses.
- Students admitted in the direct BS to PhD track and all students with a background in a traditional engineering field with no prior exposure to biology/medicine are required to complete all three courses.
- With the permission of the graduate advisor, students who have completed these courses or similar coursework in a previous graduate course of study may substitute technical electives for this requirement.

6.5. MD PhD program
Students enrolled in the MD-PhD program start the PhD program after completion of the first two years of medical school.

MD-PhD students who choose BME as their degree-granting program can count up to 15 credits of work completed during the first two years of medical school towards their PhD degree requirements (see Table 2). To receive credit, students enroll in the following courses:

- BME 611 - Accelerated Basic Science Medical Curriculum (9 credits). BME 611 satisfies the BME 601/602/603 (9 credits) requirement.
- PIB 631 - Special Work (1-6 credits): Students receive up to 3 credits for each research rotation that they complete during their first two years of medical school, up to a maximum total of 6 credits. To receive credit, students must submit a report for each rotation, following the guidelines for BME Independent Study reports.

All MD PhD students must complete a 3 credit biostatistics course. Students who have successfully completed equivalent coursework in a previous course of study can be exempted from this requirement.

6.6. Medical Physics Program
The Department of Biomedical Engineering at the University of Miami offers a special PhD program in Medical Physics accredited by CAMPEP. The objective of the Medical Physics program is to provide advanced knowledge in the field of therapeutic medical physics, and to provide the training required for students to become licensed medical physicists. This program is coordinated by the Department of Biomedical Engineering and the Department of Radiation Oncology at the School of Medicine.

Candidates are required to have completed a 3 credit course in Modern Physics (PHY360 or equivalent) and a 3 credit course covering the physical foundations of medical imaging (BME330 or equivalent) before they start their course work in the Medical Physics program.

Students enrolled in the Medical Physics Program must complete the following courses:

- BME602 - Unified Medical Sciences II (Human physiology) (3 cr)
- BME620 - Medical Imaging Systems (3 cr)
- BME681 - Radiobiology and Physics (3 cr)
- BME682 - Radiation Therapy (3 cr)
BME683 - Radiation Protection (3 cr)
BME729 – Advanced Medical Imaging (3 cr)
BME781 - Radiation Dosimetry and Physics (3 cr)
BME783 - Radiation Therapy Clinical Rotation (3 cr)
BME784 – Medical Physics Journal Club (1 cr)

Students enrolled in the Medical Physics program must complete their PhD dissertation project on a topic related to medical physics. In general, the project is co-supervised by Faculty from the Department of Biomedical Engineering and the Department of Radiation Oncology.

Students enrolled in the Medical Physics program must also complete an additional separate qualifying examination focused on the medical physics curriculum (see Section 7.2).

Additional information on the Medical Physics program can be found on the Department website: http://www.bme.miami.edu/medical_physics/medical_physics_laboratory.html

6.7. Dissertation credits
Dissertation credits are earned by enrolling in BME 830 before admission to candidacy and BME 840 after admission to candidacy.

6.8. Research in Residence
Once a student has completed all required course and dissertation credits, he or she must enroll in Research in Residence status (BME 850, 0 credit) until the degree has been granted. Research in Residence status is considered full time enrollment. Credit is not granted for research in residence, but a fee is charged for each enrollment.

6.9. Typical curricula
Typical curricula are included in the following tables. The course sequence and timeline can be adjusted based on individual needs, except for the qualifying examination, dissertation proposal and dissertation defense, which must be completed within the timeframe described in this manual.
Table 2: Course and Dissertation requirements for the PhD degree. Students admitted with non-engineering degrees are generally accepted conditionally, with the requirement to complete a set of undergraduate courses in engineering and/or mathematics before gaining full admission into the PhD program.

**Direct BS to PhD track**

a) 42 course credits including the following three classes:
   - BME 601 - Unified Medical Sciences I (Cellular/Molecular) - 3 credits
   - BME 602 - Unified Medical Sciences II (Human physiology) - 3 credits
   - BME 603 - Unified Medical Sciences III (Neuroscience) - 3 credits
   - A minimum of 12 credits must be at the 700 level
   - A maximum of 12 credits can be taken outside the BME Department, with approval of Graduate Advisor
b) Graduate Seminar (BME 780, 0 credit)
c) Responsible Conduct of Research training (RST 611 and RST 612)
d) 18 credits of dissertation work (BME 830 before admission to candidacy; BME 840 after admission to candidacy)

**MS or MD to PhD track**

a) 18 course credits including at least two of the following three classes:
   - BME 601 - Unified Medical Sciences I (Cellular/Molecular) - 3 credits
   - BME 602 - Unified Medical Sciences II (Human physiology) - 3 credits
   - BME 603 - Unified Medical Sciences III (Neuroscience) - 3 credits
   - A minimum of 6 credits must be at the 700 level
   - A maximum of 6 credits can be taken outside the BME Department, with approval of Graduate Advisor
b) Graduate Seminar (BME 780, 0 credit)
c) Responsible Conduct of Research training (RST 611 and RST 612)
d) 12 credits of dissertation work (BME 830 before admission to candidacy; BME 840 after admission to candidacy)

**MD-PhD Program**

a) 42 course credits including the following three courses:
   - BME 611 - Accelerated Basic Science Medical Curriculum (9 credits)
   - PIB 631 - Special work (1-6 credits)
   - A 3 credit graduate biostatistics course
   - A minimum of 12 credits must be at the 700 level
   - A maximum of 12 credits can be taken outside the BME Department, with approval of Graduate Advisor
b) PIB 600 - Journal Club (1 credit)
c) Graduate Seminar (BME 780, 0 credit)
d) Responsible Conduct of Research training (RST 611 and RST 612)
e) 18 credits of dissertation work (BME 830 before admission to candidacy; BME 840 after admission to candidacy)

**Medical Physics Program**

Students enrolled in the Medical Physics Program must follow the general requirements of the PhD program and must complete the following classes as part of their course curriculum:
   - BME 602 - Unified Medical Sciences II (Human physiology) - 3 credits
   - BME 620 – Medical Imaging Systems – 3 credits
   - BME 681 – Radiobiology and Physics – 3 credits
   - BME 682 – Radiation Therapy – 3 credits
   - BME 683 – Radiation Protection – 3 credits
   - BME 729 – Advanced Medical Imaging – 3 credits
   - BME 781 – Radiation Dosimetry and Physics – 3 credits
   - BME 783 – Radiation Therapy Clinical Rotation – 3 credits
   - BME 784 – Medical Physics Journal Club – 1 credit
### Direct BS to PhD track – Fall Admission\(^{(1)}\)

<table>
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<tr>
<th>YEAR 1</th>
<th>Fall</th>
<th>Spring</th>
<th>Summer</th>
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<tbody>
<tr>
<td>9 course credits</td>
<td>9 course credits</td>
<td>Research</td>
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<td>6 course credits</td>
<td>1 dissertation credit (BME830)</td>
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<td>DISSEDATION PROPOSAL(^{(2)})</td>
<td>ADMISSION TO CANDIDACY</td>
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<th>Summer</th>
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<td>1 dissertation credit (BME840)</td>
<td>6 dissertation credits (BME840)</td>
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<td>APPLY FOR GRADUATION</td>
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<td>DISSERTATION DEFENSE(^{(3)})</td>
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### Direct BS to PhD track – Spring Admission\(^{(1)}\)

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<tr>
<td>DISSEDATION PROPOSAL(^{(2)})</td>
<td>ADMISSION TO CANDIDACY</td>
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<th>Summer</th>
<th>Fall</th>
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<tbody>
<tr>
<td>1 dissertation credit (BME840)</td>
<td>Research</td>
<td>6 dissertation credits (BME840)</td>
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<td>9 dissertation credits (BME840)(^{(4)})</td>
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<td>DISSERTATION DEFENSE(^{(3)})</td>
<td>GRADUATION (MAY)</td>
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</table>

\(^{(1)}\) Students admitted with M.D. degrees or other non-engineering disciplines are generally required to take additional courses.

\(^{(2)}\) The dissertation proposal must be defended before the end of the first semester of Year 3.

\(^{(3)}\) Students may be able to defend their dissertation and graduate earlier.

\(^{(4)}\) Students who complete their dissertation credits before the semester of their graduation must enroll in 0 credits of Research in Residence (BME850) in subsequent semesters to maintain full-time student status.
# MS to PhD track – Fall Admission\(^{(1)}\)

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<td>9 course credits</td>
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<tr>
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<td>DISSERTATION PROPOSAL(^{(2)}) ADMISSION TO CANDIDACY</td>
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<td>Fall</td>
<td>Spring</td>
<td>Summer</td>
<td></td>
</tr>
<tr>
<td>8 dissertation credits (BME840)(^{(3)})</td>
<td></td>
<td></td>
<td>DISSERTATION DEFENSE(^{(4)}) GRADUATION (DECEMBER)</td>
</tr>
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</table>

# MS to PhD track – Spring Admission\(^{(1)}\)

<table>
<thead>
<tr>
<th>YEAR 1</th>
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<tr>
<td>Spring</td>
<td>Summer</td>
<td>Fall</td>
<td></td>
</tr>
<tr>
<td>9 course credits</td>
<td>Research</td>
<td>9 course credits</td>
<td>QUALIFYING SCREENING EXAMINATION (January)</td>
</tr>
</tbody>
</table>

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<tr>
<th>YEAR 2</th>
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<tbody>
<tr>
<td>Spring</td>
<td>Summer</td>
<td>Fall</td>
<td></td>
</tr>
<tr>
<td>1 dissertation credit (BME830)</td>
<td>Research</td>
<td>1 dissertation credit (BME830)</td>
<td>DISSERTATION PROPOSAL(^{(2)}) ADMISSION TO CANDIDACY</td>
</tr>
</tbody>
</table>

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<tr>
<th>YEAR 3</th>
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<tbody>
<tr>
<td>Spring</td>
<td>Summer</td>
<td>Fall</td>
<td></td>
</tr>
<tr>
<td>1 dissertation credit (BME840)</td>
<td>Research</td>
<td>1 dissertation credit (BME840)</td>
<td>APPLY FOR GRADUATION</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>YEAR 4</th>
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<tbody>
<tr>
<td>Spring</td>
<td>Summer</td>
<td>Fall</td>
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<tr>
<td>8 dissertation credits (BME840)(^{(3)})</td>
<td></td>
<td></td>
<td>DISSERTATION DEFENSE(^{(4)}) GRADUATION (MAY)</td>
</tr>
</tbody>
</table>

\(^{(1)}\) Students admitted with M.D. degrees or other non-engineering disciplines are generally required to take additional courses.

\(^{(2)}\) The dissertation proposal must be defended before the end of the fourth semester.

\(^{(3)}\) Students who complete their dissertation credits before the semester of their graduation must enroll in 0 credits of Research in Residence (BME850) in subsequent semesters to maintain full-time student status.

\(^{(4)}\) Students may be able to defend their dissertation and graduate earlier.
MD - PhD program – Fall Admission

<table>
<thead>
<tr>
<th>YEAR 1</th>
<th>Fall</th>
<th>Spring</th>
<th>Summer</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>9 course credits Research</td>
<td>9 course credits Research</td>
<td>Research QUALIFYING SCREENING EXAMINATION (August)</td>
</tr>
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</table>

<table>
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<th>YEAR 2</th>
<th>Fall</th>
<th>Spring</th>
<th>Summer</th>
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<tbody>
<tr>
<td></td>
<td>9 course credits Research</td>
<td>1 dissertation credit (BME 830) Research</td>
<td>Research DISSERTATION PROPOSAL(1) ADMISSION TO CANDIDACY</td>
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</table>

<table>
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<tr>
<th>YEAR 3</th>
<th>Fall</th>
<th>Spring</th>
<th>Summer</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>1 dissertation credit (BME 840) Research</td>
<td>1 dissertation credits (BME 840)</td>
<td>Research</td>
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</table>

<table>
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<tr>
<th>YEAR 4</th>
<th>Fall</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6 dissertation credits (BME 840)(2) Research</td>
<td>9 dissertation credits (BME 840)(2) APPLY FOR GRADUATION</td>
<td>DISSEETATION DEFENSE(3) GRADUATION (MAY)</td>
</tr>
</tbody>
</table>

(1) The dissertation proposal must be defended before the start of the fifth semester.
(2) Students who complete their 18 dissertation credits before the semester of their graduation must enroll in 0 credits of Research in Residence (BME850) in subsequent semesters to maintain full-time student status.
(3) Students may be able to defend their dissertation and graduate earlier.

7. QUALIFYING EXAMINATION

7.1. General description
All students in the PhD program must pass a Comprehensive Qualifying Examination, which consists of two parts:
- A screening examination which serves to diagnose deficiencies in the core disciplines.
- The defense of a dissertation proposal
Upon completion of the examination process, the Supervisory Committee shall notify the Graduate School and the department that the student has passed or failed the examination.

7.2. Screening examination

Format: The screening examination is administered once a year (August) over a period of 1.5 days. The screening examination consists of three written tests on the topics of basic engineering, applied mathematics and computer science, and applied physiology and medical science. Each test lasts 2.5 hours and consists of a minimum of 12 independent questions or problems assigned by the primary faculty of the BME Department. In each test, students must select and satisfactorily answer 6 problems. Students enrolled in the MD-PhD program are exempt from taking the applied physiology and medical science section of the qualifying examination.

Schedule: The examination must be taken the first time it is scheduled after completion of the first two semesters. The Graduate School will not, ordinarily, approve the taking of the qualifying examination until the student has had a minimum of one continuous academic year of graduate work in courses, seminars, and directed or tutorial study. In the Department of Biomedical Engineering, a student in good academic standing may take the screening examination after completing only one full semester of classes, with approval of
his/her mentor. Students that wish to take the screening examination early must submit to the Graduate Program Director a written request signed by the student and mentor, stating that:

a. The student is confident that he/she will pass all three sections of the screening examination (physiology, mathematics, and engineering).

b. The student understands that he/she will have only **one** opportunity to re-take any section of the exam that is not passed in the first attempt. Any section that is not passed in the first attempt must be re-taken the next time the exam is offered.

c. The mentor is confident that the student is prepared to successfully pass all three sections of the screening examination at the first attempt.

The request must be approved by the Graduate Program Director and Department Chairperson. A sample of a request form is provided in Appendix.

**Repeat:** A student who fails the examination might be given the opportunity to repeat once any or all parts of the examination. Permission to retake the examination is not automatic. It requires approval of the program faculty. Under exceptional conditions, students may be allowed to repeat a single section a second time. Students who fail the qualifying examination are dropped from the program. Students admitted to the doctoral program with a BS degree that do not pass the qualifying examination may complete the MS degree.

**Medical Physics screening examination:** Students enrolled in the Medical Physics program must pass an additional screening examination focused on topics covered in the Medical Physics curriculum. The examination is typically scheduled the semester following the regular BME screening examination, and consists of 6 separate written tests on the following topics, corresponding to courses in the curriculum: Anatomy/Radiobiology (BME602/681); Medical Imaging (BME620/729); Radiation Therapy Physics (BME682); Radiation Protection (BME683); Radiation Dosimetry (BME781); Medical Physics Clinical Rotation (BME783). The entire examination is scheduled in a single day, with each test lasting 55 minutes. The minimum passing score for each test is 70%. Students who fail one or more of the tests must retake the test(s) before the end of the semester. Students who fail the same test twice are dropped from the Medical Physics program.

**7.3. Supervisory Committee**

(See also the Graduate Bulletin and the Graduate School website. The Graduate School website provides a list of Faculty who are members of the University of Miami Graduate Faculty).

Following the successful completion of the screening examination, a PhD Supervisory Committee is appointed by the Chairperson of the Department of Biomedical Engineering. Usually, the student consults with his/her research mentor and with the Chairperson to select the Committee members. In the Department of Biomedical Engineering, the members of the Supervisory Committee usually also eventually serve on the Dissertation Committee (See Section 9.1).

The role of the Supervisory Committee is to administer the dissertation proposal, and to make up any additional written or oral examination deemed necessary to complete the qualifying examination.

In the Department of Biomedical Engineering, the Supervisory Committee must be comprised of at least five members. The five members include the committee chair, who shall be a Primary Faculty member of the Department of Biomedical Engineering, as well as a regular member of the Graduate Faculty. Of the remaining members, it is also required that two shall be from Graduate Faculty and one from outside the department. It is an
additional requirement of the Department of Biomedical Engineering that two of the remaining members shall be primary Faculty members from the Department. A research mentor who is not a Primary Faculty member of the Department of Biomedical Engineering, can serve as Co-Chair of the Supervisory Committee, together with a second Co-Chair who shall be a member of the primary faculty of the Department of Biomedical Engineering.

7.4. Dissertation proposal
Each student must submit an original written proposal describing the goals of the dissertation research project, the significance of the work, preliminary studies, and the research plan. The proposal must be submitted to the Supervisory Committee and orally defended before the end of the fourth semester for students admitted with an MS degree and before the end of the first semester of the third year for students admitted with a BS degree. The student’s knowledge of the proposed research topic will be tested during the oral defense. If any deficiencies are discovered during the defense of the proposal, an additional written or oral examination may be required by the Ph.D. Supervisory Committee.

8. ADMISSION TO CANDIDACY
A student who has completed all the course requirements, passed the screening examination, and successfully defended the dissertation proposal must:

a) submit a signed "Approval of the Dissertation Proposal" form to the Graduate Program Director of the Department of Biomedical Engineering. The form is available on the Department of Biomedical Engineering Website.

b) form a Dissertation Committee (see below)

c) submit an Admission to Candidacy form to the Graduate School to be granted admission to candidacy.

Admission to candidacy recognizes the fact that a student enrolled in the PhD program has completed all doctoral degree requirements except completion of an acceptable dissertation project and defense of the dissertation. Completion of the dissertation credits (BME 830 and/or BME 840) is not a requirement for admission to candidacy in the Department of Biomedical Engineering.

With approval of the Department Chair, admission to candidacy may be granted to students that have not completed their entire course requirements if they have passed the screening examination, successfully defended the dissertation proposal, and are in good academic standing.

No student may receive the degree in the same semester or summer session in which he or she is admitted to candidacy. The student must be admitted to candidacy before the defense of dissertation is scheduled.

9. DISSERTATION COMMITTEE
(See also the graduate bulletin and the Graduate School website)
In the Department of Biomedical Engineering, the Dissertation Committee is generally the same as the Supervisory Committee, but it may also be a committee formed anew to undertake the duties of advising and passing upon the dissertation. The Dissertation Committee is nominated by the Department, and is approved and appointed by the Dean of the Graduate School.
As with the Supervisory Committee, the Dissertation Committee must be comprised of at least five members, including the committee chair. The committee chair shall be a Primary Faculty member of the Department of Biomedical Engineering, as well as a regular member of the Graduate Faculty. Of the remaining members, it is also required that two shall be from Graduate Faculty and one from outside the department. It is an additional requirement of the Department of Biomedical Engineering that of the remaining members, at least two should be primary Faculty members from the Department. A research mentor who is not a member of the Primary Faculty of the Department of Biomedical Engineering, can serve as Co-Chair of the Dissertation Committee, together with a second Co-Chair who shall be a member of the primary faculty of the Department of Biomedical Engineering.

One additional requirement is that the Dissertation Committee of students enrolled in the MD-PhD program must include one member of the MD-PhD program committee.

The duties of the Dissertation Committee are:

a. to consult with and to advise students on their research;

b. to meet, at intervals, to review progress and expected results;

c. to read and comment upon the draft dissertation;

d. to meet, when the dissertation is completed, to conduct the final oral examination and to satisfy itself that the dissertation is a contribution to knowledge and that it is written in lucid and correct English and submitted in approved form.

10. DOCTORAL DISSERTATION

10.1. General description
The doctoral dissertation is a monograph which describes the significance of the research and summarizes the research activities completed as part of the doctoral degree requirements. The objective of the dissertation is to evaluate the candidate’s competence in the area of the Ph.D. research. The dissertation must demonstrate that the research is original and that it makes a significant contribution to the field of study.

A final public oral defense of the dissertation is required. However, none but the members of the dissertation committee may interrogate the candidate. The defense must be held before the deadline published on the Graduate School website, generally at least two weeks prior to the last day of class in the semester the student wishes to graduate. The student must submit the Defense Notice Form available on the Graduate School website and provide a copy to the Department of Biomedical Engineering.

The candidate is well advised to have a final, acceptable typescript of the dissertation in the hands of each member of his/her committee at a time reasonably in advance of the final defense of the work a minimum of two weeks prior to the defense.

10.2. Dissertation format and deadlines
It is the duty of the student to ensure that the dissertation defense is scheduled and that a final version of the dissertation approved by the Dissertation Editor is submitted to the Dissertation Editor by the required deadlines set by the Graduate School. All information pertaining to the formatting and electronic guidelines for electronic thesis and dissertation submission can be found on the Graduate School website. The Graduate School also encourages students to contact the Dissertation Editor at the Graduate School (grad.dissertation@miami.edu) when they start preparing their dissertation.
Students must inform the Department of Biomedical Engineering of their intent to defend at least 2 weeks in advance of the defense date, by email to the Department staff. The email must include the dissertation title and the date, time and location of the defense. The information will be posted in the Department’s physical and online bulletin boards.

Each dissertation must be accompanied by a certificate of approval of oral defense of thesis signed by all members of the Committee. Forms can be downloaded from the Graduate School website.

10.3. Evaluation forms
The candidate is responsible for distributing dissertation evaluation forms to the members of the Dissertation Committee. The evaluation forms are used to assess the overall quality of the graduate program at the Department, College, and University level. The evaluation forms are available on the Graduate School and Department of Biomedical Engineering websites. The forms must be completed by the Committee members after the dissertation defense. The completed forms must be collected by the Dissertation mentor and forwarded to the Office Manager at the Department of Biomedical Engineering.

11. PUBLICATION REQUIREMENTS
As a requirement for graduation, all PhD Candidates at the University of Miami Department of Biomedical Engineering are expected to have published, or have in press (i.e., the manuscript must have received final acceptance), in high quality peer-reviewed journals, a minimum of 2 publications describing work related to the dissertation. The candidate must be the first author on at least one of these two publications. In addition, the candidate must have been the presenting author of at least 2 oral or poster presentations describing the dissertation work at major peer-reviewed international conferences.

12. TEACHING REQUIREMENTS
Students enrolled in the PhD program in Biomedical Engineering who passed their qualifying examination are required to participate in undergraduate teaching activities. The minimum requirement will be to teach one undergraduate classroom lecture per academic year, under the supervision of the primary or secondary mentor, and/or the faculty responsible for the course and to help supervise at least one undergraduate student research project per academic year. For each classroom lecture, the mentor will provide feedback to the student and complete and sign a teaching evaluation form (see Appendix) which must be returned to the Graduate Program Director.

13. ASSISTANTSHIPS AND FELLOWSHIPS
13.1. Definitions
FE (Fellow): Responsibilities do not include the provision of direct services to the University and require internal/external fellowship support.
GA (Graduate Assistant): Responsibilities are mainly in professional support of University operations and programs. Graduate students should not be hired to perform clerical duties.
RA (Research Assistant): Responsibilities are mainly conducting research and/or assisting with research projects.
TA (Teaching Assistant): Responsibilities are mainly teaching and/or assisting in the area of teaching.
13.2. General description
Financial support in the form of teaching and research assistantships (TAs, RAs) is available to outstanding students. Teaching and research assistantships are awarded to exceptional applicants depending on the availability of funds, the research needs of the Faculty and the teaching needs of the Department. Assistantships provide support for up to 4 years for students admitted with a BS degree and up to 3 years for students admitted with a MS degree. Extensions may be granted to students that are in good academic standing and demonstrate progress in their dissertation. Extensions can only be granted by the Department Chair and Associate Dean for Research at the request of the student and his/her mentor. Assistantships are 12-month positions which provide financial support in the form of a monthly stipend, full graduate tuition waiver, and partial coverage of health insurance costs.

In 2015-2016 the stipend is $2,250.50 per month, or $27,000 per year and the funds provided for health insurance coverage amounts to 80% of the cost of basic student health insurance. In order to receive the 70% credit students must purchase the insurance through the University and request payment through payroll deduction. The estimated cost of basic student health insurance was $2,467 as of August 2015.

Assistantships are most commonly awarded at the time of acceptance into the program. Students who initially enroll without financial support maybe awarded a Research or Teaching Assistantship at a later time, depending on the teaching or research needs of the Department and the availability of open positions.

13.3. Work schedule
Teaching and Research Assistants will be assigned teaching duties, research work, or a combination thereof. The research or teaching assignment of RAs or TAs is limited to 20-hours per week. These 20 hours include only the work assigned as part of the assistantship. It does not include the effort directly required for dissertation research. Outside of their 20 hour assistantship work assignment, students supported on assistantships are expected to work full-time on their Ph.D. dissertation. Assistantships are 12-month positions. During the winter and summer breaks students are expected to work full-time on research.

No employment outside the Department or University is permitted throughout the duration of the assistantship. Students are expected to focus on their Ph.D. dissertation at all times, especially during the summer break, from mid-May to mid-August of each year. RAs and TAs are entitled to a total of 20 days of combined vacation and holidays per year.

Questions regarding work for international students should be directed to International Student and Scholar Services.

13.4. Continuation
Continuation of the assistantship beyond the first year is contingent on satisfactory progress towards the Ph.D. degree, including satisfactory evaluations in research and/or teaching assignments, and attendance in the College of Engineering Distinguished Speaker Series and the Department’s Seminar Series. Satisfactory progress also requires the identification of a Ph.D. Research Advisor by May 15th of the first calendar year of enrollment, a strong focus on and commitment to research, timely writing and publication of research results, minimum University of Miami GPA of 3.3, and fulfillment of other requirements as specified in the graduate bulletin.
13.5. Research Assistantships
Research Assistantships are generally awarded at the time of acceptance into the program to students that have been nominated by a Faculty member who will serve as the student’s mentor. The Department Chair and Associate Dean for Graduate Studies review the nomination and make a decision based on academic merit and availability of funds. The selection and award criteria typically include the academic record, letters of references, previous research experience, publication record, and availability of research funds. Students supported through RAs usually start their research activities with their mentor as soon as they enroll in the program.

RAs are trained primarily by their faculty mentor and other faculty as needed for the purpose of the research project. Most RAs receive training specific to their research field. For instance, RAs participating in animal or human studies must receive the required ACUC and IRB certification. In addition, all students receive training on laboratory safety issues as required by the University of Miami’s Office of Environmental Health and Safety (EHS), on issues related to chemical, biological, and optical and ionizing radiation hazards as relevant. All RAs must also complete a course on the ethical conduct of research (RST 611/612, see Table 2).

13.6. Teaching Assistantships
Teaching Assistantships are awarded by the Department Chair to first year doctoral students with outstanding academic records and with a potential for teaching. They are also sometimes awarded to students who are already enrolled in the program when there is a gap in the research funding that supports the student. Students who receive a teaching assistantship during their first academic year are expected to find a mentor and transfer to a research assistantship position after the first year.

Teaching Assistants are subject to general University regulations. All international TAs must pass a test to demonstrate their English proficiency. Typically TA assignments in the BME Department include teaching of laboratory courses (BME 112 lab, BME 311, BME 440 lab, BME 506, BME 507, BME 566), or assisting professors with grading and course preparation. TAs are mentored and work closely with the professor responsible for the course. They are evaluated by the students using the same end-of-semester evaluation forms as for regular classes. TAs who obtain unsatisfactory student evaluations or do not teach well are either reassigned to a new TA position that does not involve direct laboratory teaching, transferred to a RA position, or removed from the assistantship position.

13.7. Other fellowship opportunities
Students are strongly encouraged to explore other fellowship and scholarship opportunities, such as NIH pre-doctoral fellowships, NSF graduate fellowships and other similar internal or external funding mechanisms.

14. STUDENT ADVISING AND MENTORING

14.1. Overview
In the Department of Biomedical Engineering, students are advised by the Department’s Graduate Advisors and their primary and secondary research mentor. In addition, the members of the advisory and dissertation committee are available to provide advice as needed. Either the primary or secondary mentor must hold a primary appointment in the Department of Biomedical Engineering.
14.2. Graduate Advisors
The Department Chair and the Graduate Program Director serve as the Graduate Advisors in the Department of Biomedical Engineering. The role of the Graduate Advisor is to ensure that the student completes all of the academic requirements in due time and that there is satisfactory progress towards the degree, including completion of the course requirements, qualifying examination, dissertation proposal, and dissertation defense. The Graduate Advisor helps the student select his classes and establish the Advisory and Dissertation Committees. Should the need arise, the Graduate Advisor also serves as the contact person in the case a conflict arises between the student and his/her mentor.

14.3. Primary Research Mentor
The primary research mentor supervises the research work of the student and provides training and guidance in the relevant research topics, including design of experiments, experimental techniques, and scholarship activities. The mentor helps the student select a dissertation topic and develop a research plan, and chairs or co-chairs the advisory and dissertation committees. The mentor works closely with the student to ensure that there is satisfactory progress towards the dissertation goals.

14.4. Secondary Research Mentor
In addition to their primary research mentor, all doctoral students in the Department of Biomedical Engineering will be assigned a secondary mentor, or a co-mentor. The secondary mentor must be appointed by the Department Chair no later than when the Supervisory Committee is formed. Usually, the student consults with his/her primary research mentor and with the Chairperson to select the secondary mentor. The secondary mentor must be a member of the Supervisory Committee and of the Dissertation Committee.

The secondary mentor will participate in the research and pedagogical training of the student and will serve as the first point of contact in case of conflict between the primary mentor and the student (See also Section on Grievance Procedures). The secondary mentor will serve in an advising capacity only, and will not have any authority other than the functions normally expected from members of the Supervisory and Dissertation Committees, or from co-mentors in the case where the secondary mentor is also a co-mentor.

15. GRIEVANCE PROCEDURES
Students with grievances, other than grades and matters covered by the Honor code, are encouraged to first attempt to resolve the matter at the Department level, by seeking assistance from the Department Chair and Graduate Program Director. If the matter cannot be resolved at the Department level, students are encouraged to seek assistance first from the College of Engineering’s Associate Dean for Graduate Studies and then from the University’s Ombudsperson. If the student is not satisfied with the outcome of the determination at the Department and/or College level, he/she has the opportunity to initiate a formal graduate grievance procedure at the Graduate School level. Details can be found in the section on "Graduate Grievance Guidelines" in the Graduate Bulletin.
16. GRADUATION
In order for the Graduate School to clear a student for graduation:

a. All original documents (transcripts from previous degrees, GRE scores, etc.) must be on record in the Graduate School.
b. The Admission to Candidacy form must have been completed by the program at least one semester before graduation.
c. The student must defend his/her thesis or dissertation in the semester he/she wishes to graduate before the deadline set by the Graduate School, which is generally two weeks before the last day of class (deadlines are published on the Graduate School website).
d. The student must submit his/her final, Dissertation Editor-approved thesis or dissertation with all corrections completed and final paperwork turned in to the Graduate School by the last day of exams in the semester he/she wishes to graduate in order for their clearance to be processed in time (deadlines are published on the Graduate School website).

It is the responsibility of the student to apply for graduation either during registration for the final semester or before the date indicated on the Graduate School calendar and the Schedule of Classes. These dates are published in the academic calendar and on the Graduate School website. Students who previously applied for a diploma but did not receive the degree must repeat the application procedure.

Graduation ceremonies are held in May and December only. Students completing degree requirements during the Fall, Spring or Summer sessions may, if they wish, participate in the graduation ceremonies of the previous or following May or December. Doctoral students who are participating in the hooding ceremony must have the approval of the Department graduate program director to participate in the ceremonies.

Participation in graduation for students in all graduate programs is contingent upon the following:

a. The student must have a minimum of 3.00 cumulative grade point average;
b. The student must be admitted to candidacy one semester prior to graduation;
c. The student may not have any outstanding debt including, but not limited to, tuition, fines, and fees. Tuition for the last semester of study must be paid in full by the beginning of the final semester.

17. APPENDIX
The Appendix includes sample forms and additional information. Official versions of the forms can be downloaded from the website of the Graduate School or obtained in the BME Department Office.

1. Summary of degree requirements
2. Links to electronic forms and other useful links
3. Request for early screening examination form
4. Approval of Dissertation Proposal Form
5. Graduate Student Teaching Evaluation form
6. Addendum to assistantship offer letter
SUMMARY OF REQUIREMENTS / CHECKLIST

The following is an outline of the main degree and graduation requirements.

- Credit requirements completed
  - BS to PhD: 42 courses credits (12 credits at 700 level) + 18 dissertation credits
  - MS to PhD: 18 course credits (6 credits at 700 level) + 12 dissertation credits

- Qualifying screening examination completed
  Must be taken the first time it is offered after completion of the first two semesters

- Advisory Committee formed
  Must include at least 5 members, including 3 primary BME faculty and 1 external

- Secondary mentor selected

- Dissertation proposal approved by Committee
  - BS to PhD: Proposal must be defended before end of fifth semester.
  - MS to PhD: Proposal must be defended before end of fourth semester.

- Dissertation Committee formed
  Must include at least 5 members, including 3 primary BME faculty and 1 external

- Approval of Dissertation Proposal form and copy of Application for Admission to Candidacy form submitted to Department

- Application for Admission to Candidacy form submitted to Graduate School
  Students must be admitted to Candidacy before they defend their dissertation
  Students cannot graduate in the same semester in which they are admitted to Candidacy

- Teaching requirements completed
  - At least 1 lecture per academic year, with signed teaching evaluation form on file

- Publication requirements completed
  - At least 2 articles published. Student must be first author on at least 1 of these 2 articles.
  - Presenting author of at least 2 oral/poster at major international conferences

- Application for graduation submitted before the deadline

- All required pre-defense steps completed
  - Dissertation defense scheduled before the deadline
  - Defense announcement form submitted to Graduate School and Department before the deadline
  - Pre-defense dissertation draft submitted to graduate school before deadline
  - Complete dissertation draft submitted to committee at least two weeks before the defense

- All required post-defense steps completed before the dissertation submission deadline
  - Dissertation evaluation form completed by Committee and submitted to Graduate School
  - All steps of dissertation checklist completed

- Departmental exit interview completed
  Bring an updated resume including list of publications, presentations, honors and awards
LINKS to ELECTRONIC FORMS AND OTHER USEFUL LINKS

University of Miami Bulletin
http://www.miami.edu/index.php/academicbulletin/

Graduate School web site:
http://www.miami.edu/gs/index.php/graduate_school

Admission to Candidacy form:
https://umshare.miami.edu/web/wda/grad/forms_/web/admission_to_candidacy.pdf

Certificate of Defense Approval form:
https://umshare.miami.edu/web/wda/grad/etd/forms/phd_cert_defense.pdf

Dissertation Assessment form:
https://umshare.miami.edu/web/wda/grad/sacs/SACS_Assessment_Form.pdf

Final Checklist
https://umshare.miami.edu/web/wda/grad/etd/forms/availability_final_checklist.pdf

Dissertation Deadlines
http://www.miami.edu/gs/index.php/graduate_school/current_students/electronic_theses_dissertations/

Graduate School Location
235 Ashe Administration Bldg.
REQUEST FOR EARLY TAKE OF THE QUALIFYING SCREENING EXAMINATION

Student name: _____________________
Mentor name and title: _____________________
Requested examination date: _____________________

PART 1: STUDENT STATEMENT
I request permission to take the Qualifying Screening Examination in <MONTH and YEAR>. I understand that students are normally expected to complete two semesters of classes before taking the screening examination. I am requesting to take the examination early because I feel that I am well prepared. I am confident that I will pass all three sections of the screening examination (physiology, mathematics, and engineering) at the first attempt.

I understand that I will have only one opportunity to re-take any section of the exam that is not passed in the first attempt and that I will have to re-take any section that I do not pass in the first attempt the next time the exam is offered.

________________________
Signature and Date

PART 2: MENTOR STATEMENT
I support this request to take the screening examination early. I am familiar with the background and training of this student. I am confident that this student is well prepared to successfully pass all three sections of the screening examination at the first attempt.

________________________
Signature and Date

PART 3: APPROVAL
Approved by:

________________________  _________________________  _________________________
Graduate Program Director    Date    Department Chair    Date
UNIVERSITY OF MIAMI
DEPARTMENT OF BIOMEDICAL ENGINEERING
APPROVAL OF THE DISSERTATION PROPOSAL

The student must submit the completed and signed form to the Department Chair or Graduate Program Director together with the completed "Application for Admission to Candidacy" form. Students who have not completed their course requirements may apply for candidacy if they are in good academic standing and receive approval from the Department Chair.

Doctoral Student Name:___________________________________________

Proposed Dissertation title:___________________________________________
__________________________________________________________________

By signing this form, the Advisory Committee members certify that:
- They have read the dissertation proposal submitted by the above student as part of the requirements for the doctoral degree in Biomedical Engineering.
- They approve the research plan and authorize the student to proceed in accordance with this plan.

Advisory Committee Chairperson:

Name: ______________________________________
Primary Department/Affiliation: _________________________________
Signature: ________________________________
Date: ____________________________________

Advisory Committee Members:

Name: ______________________________________
Primary Department/Affiliation: _________________________________
Signature: ________________________________
Date: ____________________________________

Name: ______________________________________
Primary Department/Affiliation: _________________________________
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Primary Department/Affiliation: _________________________________
Signature: ________________________________
Date: ____________________________________
DEPARTMENT OF BIOMEDICAL ENGINEERING
COLLEGE OF ENGINEERING

GRADUATE STUDENT TEACHING EVALUATION

Report Form

Faculty reviewer: __________________________ Signature: __________________________

Date: __________

Course #: ____ Course Title: _________________________ Lecture Title: _________________________

Lecture Date: __________________________ Graduate Student: _________________________

REVIEW ITEMS AND COMMENTS

<table>
<thead>
<tr>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Comments</th>
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Preparation:

Ability to explain material:

Subject Knowledge:

Audibility of Voice:

Clarity of Speech:

Class Response:

Visual Aids:

Decorum/Rapport:

Appearance:

OTHER COMMENTS and SUGGESTIONS (add page if necessary)
Addendum to Graduate Student Offer Letters Detailing
College of Engineering Policy Concerning Offer Letters
(for students receiving full-time support)

Version dated: January 15, 2015
For the most recent version, please visit www.miami.edu/coe/addendum

1. **New Students**: Please review orientation presentation.

2. **Satisfactory Progress**: Financial offers can be terminated at any time if progress is deemed unsatisfactory. Satisfactory progress towards the completion of the Ph.D. degree includes:
   - Cumulative GPA of 3.3 (for courses listed in student's Ph.D. program of study)
   - Completion of qualifying exam within the first academic year of enrollment
   - Satisfactory progress and evaluations in TA duties, if applicable and participation in department's teacher training program.
   - Satisfactory progress in research (Chair is to consult with student's research advisor). Student must have identified a research advisor by the end of the second semester of enrollment.
   - Satisfactory attendance in Distinguished Speaker Series. Students are to sign the attendance sheet during each Distinguished Speaker presentation. Students are to submit excuses to their department chair for approval. Excuses are provided for conflicts with academic related activities that cannot be rescheduled (e.g. conflicts with a regularly scheduled course, or a conference which is part of the student's research requirements). Vacation is not an excuse; office hours are not an excuse; not knowing about the presentations is not an excuse.
   - Additional requirements as specified in the offer letter.

3. **Health Insurance**: In order to receive the 80% credit you must purchase the insurance through the University and request payment through payroll deduction. The College of Engineering is not bound by the estimated cost of student health insurance listed in the offer letter. For the 2014-2015 Academic Year (August 15, 2014 through August 14, 2015) the offer will cover 80% of the actual cost of basic single student health insurance. The cost of family health insurance is higher and the health insurance credit as part of this offer corresponds to 80% of the basic single student health insurance rate even if family insurance is purchased through the University.

4. **Vacation and Holidays**: Students are entitled to 20 days of combined vacation and holidays per year. Official UM holidays count towards the 20 days. The University generally has between 10 and 11 holidays per year (e.g. Thanksgiving day, Christmas day, New Year's Day, etc..). Please search under "holidays" at the University of Miami website for more details concerning the specific holidays. Students receiving financial offers must advise faculty advisors and Department Chairs in writing about which 20 days they would like to utilize for combined vacation and holidays. Which days actually taken/allowed is at the discretion of the faculty advisor and Department Chair, given TA and RA duties. The 20 vacation/holidays days expire at the end of the academic year (August 14) and will not carry over to subsequent years nor will students be paid for unused vacation/holidays. The number of vacation/holidays will be pro-rated based upon number of months within the graduate program for students entering or taking a leave from the Ph.D. program part way through the academic year.

5. **Outside Employment**: No employment is permitted outside of the Department or University. Students are expected to work full-time on their research, especially during times when coursework loads are low.

6. **Tuition Usage**: A set amount of tuition credits are allotted to each student when they enter the Ph.D. program. In order for a student to remain full time they are to enroll in at least 1 credit at the 800 level or in 9 credits at the 600 or 700 level. Furthermore, students are to enroll in at least 1 credit during the semester they graduate which would require another credit of tuition if the graduation date is scheduled for a summer semester. In order for the tuition credits to accommodate all of the student's semesters of enrollment, the 800 level thesis credits should be spread out through the various semesters to assure that there are sufficient credits for full-time
enrollment. Please meet with your Departmental Graduate Advisor to plan the distribution of thesis credits for your program. Additional tuition credits will not be provided to students for 800 research in residence credit, especially if the thesis credits were not used wisely by the student.

7. **Training:** Training is available in various areas.
   - A unique feature of the College of Engineering Ph. D. program is a teacher training program. More details about the program are available through your department chair and yearly updates are usually provided in offer letters.
   - Training in laboratory safety is available through the Office of Environmental Health and Safety. This office can be contacted at 305-243-3400.
   - All new PhD students are to participate in orientation available through the Graduate School. In particular, all new PhD students, regardless of their initial assignment, are to complete the orientation for teaching assistants. TA training is required for all new PhD students because there is an expectation that all PhD students will participate in teaching activities at some point during their academic studies. TA orientation training is to be completed within 4 weeks of the start of the academic semester in which new PhD students begin their degree program. For the 2012 to 2013 academic year, the direct link to register for on-line TA training is available at UM New TA Orientation site.
   - All researchers are required to complete training in the responsible conduct of research (RCR) during the first academic semester of enrollment. Details about RCR training is available at the RCR web site.
   - In addition to RCR training, all researchers are to complete a two part process that addresses possible conflicts of interest. The first part is an on-line training module in conflicts of interest that can be accessed at CITI COI Training site. The second part is completing a disclosure. The disclosure forms can be accessed at DPS site.
   - Teaching Assistants whose native language is not English are to take a Speak Test. International Teaching Assistants are eligible to take a spoken English course to assist in verbal communication. More information is available through the Intensive Language Institute (305-284-2752).

8. **International Students Requiring a New Letter for I20 Renewal:** The previously issued offer letter can be used for I20 renewal. If the date on the letter is beyond the time frame allowed by International Student and Scholar Services, then the same letter can be issued with a more recent date. Please contact your Department Chair for the updated letter if a re-issue is necessary.

9. **Graduate students** are highly encouraged to work with their research mentors in preparing research proposals, especially proposals for fellowship awards through NSF, NIH, and other funding agencies. Ask your research mentor for advice about writing research proposals and about potential funding agencies for submitting proposals. A Opportunities for NSF fellowships are available within the Graduate Research Fellowship Program (GRFP). Training materials developed through the College of Engineering for the NSF-GRFP include this presentation. NIH is composed of many different institutes. Each institute has its own opportunities. A good summary of the NIH fellowship opportunities are given at NIDCR site. Additional opportunities through NIH are described within NIH’s Office of Intramural Training & Education. Other agencies to consider include the U.S. Department of Energy, Office of Naval Research, and Air Force Office of Scientific Research. Additional opportunities are also described at the University of Miami Graduate School Web Site.

10. **Conference travel:** Students whose abstracts have been accepted for a conference in the area of their research can apply for partial funding through the University’s GAFAC. You should also discuss sources of funding with your faculty research supervisor.