

JOINT GRADUATE PROGRAM IN BIOMEDICAL ENGINEERING  
UNIVERSITY OF MEMPHIS  
UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

GRADUATION MANUAL  
UNIVERSITY OF MEMPHIS

**Welcome** to the Joint Graduate Program in Biomedical Engineering. Our academic program is a collaboration of the University of Tennessee Health Science Center, the University of Memphis, and their partnering entities. From its inception in 1996, the Joint Program has had annual enrollments of 60 or more fully supported graduate research assistants. We offer three kinds of graduate degrees in biomedical engineering: the M.S. degree based on a research project; the M.S. degree based on a research thesis; and the Ph.D. degree based on a doctoral dissertation.

This graduation manual provides general information about the requirements for students administratively sited at the University of Memphis. UTHSC students should consult graduation requirements for UTHSC Graduate School. This document is only a guide; official policies, as updated and/or augmented may be found in the University of Memphis Graduate Catalog (<http://www.memphis.edu/gradcatalog/>) and Graduate School website (<http://www.memphis.edu/gradschool/>).

## DEGREE REQUIREMENTS

Below is the summary of degree requirements. Credits refer to graduate-level course work on a semester basis:

### MS (with thesis)

<b>Academic Credits :</b>	
life sciences	6 credits
math and its applications	6 credits
biomedical measurements (or control systems)	3 credits
biomedical or related engineering	9 credits
thesis (S/U grading)	6 credits
<b>Required Participatory Credit:</b>	
Seminar and professional development	3 credits

### MS (with project)

<b>Academic Credits :</b>	
life sciences	6 credits
math and its applications	6 credits
biomedical measurements (or control systems)	3 credits
biomedical or related engineering (can include 3 credits of project)	15 credits
project with review committee	3 credits
<b>Required Participatory Credit:</b>	
Seminar and professional development	3 credits

**Note:** All graduate students are required to attend seminar and professional development each fall and spring semester whether officially enrolled for credit or not.

## PhD

**Note:** The following are the general requirements for PhD assuming that the student already holds a Master's Degree in Biomedical Engineering. It is important to realize that because of the nature of the PhD program, setting specific requirements for graduation is nearly impossible. The PhD committee is the body that ultimately decides what courses are needed for each individual based on his/her background and dissertation.

<b>Academic Credits :</b>	
life sciences	6 credits
math and its applications	6 credits
biomedical measurements (or control systems)	3 credits
biomedical or related engineering (course choices are guided by the faculty committee)	18 credits
research (usually split as thesis for MS degree and dissertation for PhD)	24-30 credits
<b>Required Participatory Credit:</b>	
Seminar and professional development	3 credits
Ethics	1 credit

**Note:** Students without a strong pre-medical background usually take the following two courses offered by the BME department as part of their life science requirements:

- *Life Sciences for BME, I* (BIOM 7/8004)
- *Life Sciences for BME, II* (BIOM 7/8005)

Students with pre-medical background take courses offered in other departments, especially:

- At UM: Graduate courses currently listed in the UM catalog under the headings of "Biology"
- At UT: Graduate courses in the Integrated Program in Biomedical Sciences. For more information visit <http://www.uthsc.edu/grad/CourseInfo/Courses/index.php?page=IPBS>. To enroll in a UT course in IPBS or other department/program, you must obtain approval from your faculty advisor and request enrollment through the BME office.

See the complete list of approved courses to satisfy the life science requirement ([http://www.uthsc.edu/bme/?p=ls\\_courses](http://www.uthsc.edu/bme/?p=ls_courses)) and a list of permissible courses to satisfy the mathematics requirement ([http://www.uthsc.edu/bme/?p=math\\_courses](http://www.uthsc.edu/bme/?p=math_courses)).

All graduate students are required to attend seminar and professional development each fall and spring semester whether officially enrolled for credit or not.

## Typical Curriculum in Biomedical Engineering

The table illustrates typical semester patterns of courses, exams and research for a thesis-based MS degree that is followed by a Ph.D. The minimum graduate school requirement for the Joint Program is 57 credits (plus 6 credits for the MS thesis and 24 credits for the PhD dissertation). Students and their faculty committee agree on the actual number of credits; few take the exact number shown. Some courses can be chosen from lists; others are chosen with the consent of the faculty advisor and committee. The term "engineering choice" is understood to include applicable course work.

1st Year	<b>Fall:</b> Life Sci. for BME, Pt. I (3) Analysis for BME (3) Biomedical Instrumentation and Measurements (3) Seminar	<b>Spring:</b> Life Sci. for BME, Part II (3) Math Elective (3) Engineering Choice (3) Seminar
	<b>Summer: LEVEL A EXAM (in May)</b>	
2nd Year	<b>Fall:</b> Engineering Choices (6) Thesis Seminar Level A Exam (in Jan; if missed in May)	<b>Spring:</b> Life Science Requirement [from list] (3) Math Elective [from list] (3) Engineering Choice (3) Seminar <b>(MS COMPLETED)</b>
	<b>Summer: Dissertation Proposal submitted, LEVEL B EXAM</b>	
3rd Year	<b>Fall:</b> Life Science Requirement [from list] (3) Math Elective [from list] (3) Engineering Choice (3) Seminar	<b>Spring:</b> Engineering Choice (3) Engineering Choice (3) Math Elective [from list] (3) Seminar Dissertation
	<b>Summer: Dissertation</b>	
4th Year	<b>Fall:</b> Engineering Choice (3) Engineering Choice (3) Seminar Dissertation	<b>Spring:</b> Optional Elective Optional Elective Engineering Choice (3) Ethics Seminar Dissertation
	<b>Summer: Dissertation</b> ( <i>The pattern continues until dissertation is defended. Often, selected courses are taken with permission or encouragement by the faculty committee.</i> )	

## REQUIRED FORMS AT THE UNIVERSITY OF MEMPHIS:

### Progress Report

Students should submit a progress report form every fall and spring semester to the Biomedical Engineering (BME) office. In general, you should meet with your faculty committee to discuss curriculum choices and progress towards the thesis/dissertation. New students in their first semester may choose to meet with their faculty advisor and a potential committee member. It is recommended that you bring this form with you to your progress report meeting. Access the form here: <http://www.uthsc.edu/bme/forms/Progress%20Report.pdf>

### Thesis/Dissertation Faculty Committee Appointment Form

Before undertaking ANY work on a Master's thesis or doctoral dissertation, a faculty committee must be formed, and the Graduate School should be notified of said committee (*minimum of three members for a Master's thesis committee; minimum of four members for a doctoral dissertation committee*). It is the student's responsibility to ensure that all members of her/his committee are current members of the graduate faculty. Students must not defend their document until all committee members have U of M graduate faculty status, even if a committee member is not affiliated with this university.

See the current list of graduate faculty:

[http://www.memphis.edu/gradschool/graduate\\_faculty/departmental\\_listings/biom.php](http://www.memphis.edu/gradschool/graduate_faculty/departmental_listings/biom.php)

Students should submit a Thesis/Dissertation Committee Appointment Form to the BME office during the first year of studies (usually during first spring or summer terms). This form **must** be updated if a committee member is added or deleted. Access the form here:

<http://www.memphis.edu/gradschool/forms.php>

### Thesis/Dissertation Proposal Defense Form

Master's thesis students **should** submit the Thesis/Dissertation Proposal Defense form to the BME office during the first year of studies. This form is not necessary for MS project students. Doctoral students should complete the proposal defense during the second year and submit **both** the Thesis/Dissertation Proposal Defense form and the Level B form to the BME office. Access the proposal defense form here:

<http://www.memphis.edu/gradschool/forms.php>.

Access the Level B form here:

<http://www.uthsc.edu/bme/forms/Level%20B%20Form.pdf>

### Intent to Graduate

Graduation is NOT automatic and you must file your intent to graduate by the appropriate deadlines. Information on the dates and deadlines for filing your intent to graduate form for your intended semester of graduation may be found at <http://www.memphis.edu/gradschool/deadlines.php>. You will be asked to login with your official University of Memphis UUID username and password (NOTE: this is your email username and password, not your Student U-Number). Once you have completed the form, click on the "Preview" button at the bottom of the page. If your information is correct, click the "Submit" button. You will receive a confirmation page. If for any reason you fail to complete graduation requirements (e.g. defend thesis/dissertation on time) then you **must refile a new** intent to graduate form for the new semester you plan on graduating in.

### Master's and Doctoral Degree Candidacy Forms

The appropriate degree candidacy form **must be submitted in the intended semester of graduation to the BME office**. Information on the dates and deadlines for filing your candidacy for your intended

semester of graduation may be found at <http://www.memphis.edu/gradschool/deadlines.php>. Instructions for completing the form may be found at <http://www.memphis.edu/gradschool/grad/howmdc.php>. If you have transfer credit from UTHSC or other school that has **NOT** been posted to your U of M record, complete an Evaluation of Transfer Credit Form. If transfer credit has already been posted to your U of M record, complete an Approved Transfer Credit form (<http://www.memphis.edu/gradschool/grad/transfer.php>). Failure to submit the correct form will delay processing of your application, so please be sure the correct form is attached to your degree candidacy form. Access the degree candidacy and Evaluation of Transfer Credit forms here: <http://www.memphis.edu/gradschool/forms.php>.

#### Comprehensive Examination Results Form

The Comprehensive Examination Results form **must** be submitted to the BME office following the thesis defense for Master's students, following the Level A for Master's project students, and following the proposal defense for PhD students. PhD students should also complete the Level B form following the proposal defense. It is recommended that you bring form(s) with you to your defense. Access the Comprehensive Examination Results form here: <http://www.memphis.edu/gradschool/forms.php>. Access the Level B form here: <http://www.uthsc.edu/bme/forms/Level%20B%20Form.pdf>

#### Thesis/Dissertation Final Defense Results Form

The appropriate defense results form **must** be submitted to the BME office following the thesis/dissertation defense. It is recommended that you bring this form with you to your defense. Access the form here: <http://www.memphis.edu/gradschool/forms.php>.

**NOTE: All forms must be routed through the BME office.** The BME office will route forms that require Graduate Coordinator, Department Chair, and/or Dean signatures and forward to the Graduate School. The student must obtain signatures from faculty advisors and committee members.

## TIMELINE FOR SUBMITTING FORMS & THESIS/DISSERTATION

<b>Form/Thesis/Dissertation</b>	<b>Fall/Spring/Summer</b>
Progress Report	December <u>and</u> May every year
Faculty Committee Appointment Form	during first year
Level A Form	summer after first year
Proposal Defense Form	during first year MS during second year PhD
Level B Form	during second year PhD
Intent to Graduate Form	September/January/June*
Degree Candidacy Form	September/January/June*
Cap and Gown Order for Commencement Exercises**	November/April/July*
Thesis or dissertation " <i>paper</i> " copy to Graduate School for review	November/April/July*
Final, corrected thesis or dissertation PDF copy to ETD system for Graduate School approval. <b>Must be submitted by 12:00 noon.</b>	November/April/July*
Comprehensive Examination Results Form (doctoral exams are due one week after grading)	December/April/July*
Submit final thesis or dissertation copy to Graduate School for binding along with fee receipt.	December/April/July*

\*See Graduate School website for exact dates during your intended semester of graduation:

<http://www.memphis.edu/gradschool/deadlines.php>

\*\*See cap and gown order form for graduate students:

<http://www.memphis.edu/gradschool/form/regalia.php>

## THESIS/DISSERTATION PREPARATION GUIDE

The Graduate School Thesis/Dissertation Preparation Guide sets forth requirements for preparing and submitting Master's theses and doctoral dissertations to the Electronic Thesis and Dissertation (ETD) system. Students must have successfully defended their thesis or dissertation and have had it approved by their committee before a hard copy can be submitted to the Graduate School for review. Only the final approved copy containing both student's committee and Graduate School corrections will be submitted to the ETD system.

See the Thesis/Dissertation Preparation Guide for these important links:

(<http://www.memphis.edu/gradschool/tdinfo.php>)

- Thesis/Dissertation Preparation Guide
- ETD System Login Page
- Semester Graduation Deadlines
- APA Checklist
- Non-APA Checklist

Research involving animal or human subjects requires approval prior to starting work. Guidelines and forms may be found here: <http://www.memphis.edu/researchsupport/forms.php>