

# **Graduate Student Handbook**

## **MS - Plans A, B, and C**

**2016-2017**

**Department of  
Biomedical Engineering**

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**UNIVERSITY OF MINNESOTA**

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## **Location and Contact Information**

### **Department Mailing Address**

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Minneapolis, MN 55455

### **Graduate Student Mailboxes**

Every full-time PhD student on a paid assistantship or fellowship has a mailbox in the main BME office area on the 7<sup>th</sup> floor. It is your responsibility to check your mailbox regularly!

### **Director of Graduate Studies**

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## **Google Apps, E-mail, and Wireless Accounts**

Through a partnership with Google, University of Minnesota students, faculty, and staff can access a suite of Google-powered communication and collaboration tools designed to enhance our ability to work together. The suite includes email, calendar, document sharing, instant messaging, and Web site publishing tools. See <http://it.umn.edu/email-services> for details.

E-mail is the University's official means of communication with students, and the Office of Student Finance (OSF) uses e-mail as the means of sending tuition bills to all University of Minnesota-Twin Cities students. Those who primarily use a different e-mail account (e.g., hotmail, personal Gmail, etc.) are encouraged to forward their University-assigned e-mails to another preferred account. See <http://it.umn.edu/using-gmail> for more information. *Students are responsible for **all information** sent to their umn.edu email account, including attachments.*

Students who choose to use their personal computers on campus can find wireless network information and setup instructions at <http://it.umn.edu/wifi-network>.

## **Responsible Conduct of Research**

Program policy requires that all graduate students receive the equivalent of eight hours of instruction in Responsible Conduct of Research (RCR). All graduate students in BME are required to attend RCR instruction as follows:

- Complete online RCR training through the Collaborative IRB Training Initiative (CITI) by September 19, 2016 (instructions provided with orientation materials)
- Attend one Center for Bioethics Seminar presentation during each semester in which you take the BME Graduate Seminar (BME 8601/8602)

Contact the Graduate Program Coordinator ([bmengp@umn.edu](mailto:bmengp@umn.edu)) with any questions about the Responsible Conduct of Research requirements.

## **Lab Access, Safety Training**

Not all MS students will require lab access. Only authorized personnel will be granted access to lab areas, at the discretion of the advisor.

In the event that access is eventually required, it is highly advisable for all students to complete the access training during the first semester of the program.

- Introduction to Research Safety
- Bloodborne Pathogens and Infectious Agents
- Chemical Safety
- Chemical Waste Management
- Radiation Safety

These online training modules are all accessible from the Department of Environmental Health and Safety website at [http://www.dehs.umn.edu/training\\_new\\_empl.htm](http://www.dehs.umn.edu/training_new_empl.htm). Students will be required to log in with their UMN internet ID and password to access each module and to have successful completion noted on their training records.

Additional training modules may be required for different lab facilities, so students should check with their advisors for a complete list of requirements in the event that lab access is necessary.

*Lab access will not be granted until after all required training modules are complete AND the advisor has submitted an access request to the appropriate building/facility management office.*

## **BME Graduate Student (BMEGS) Intranet**

The Graduate Program Coordinator has developed a BME Graduate Student (BMEGS) Intranet through Google Sites at <https://sites.google.com/a/umn.edu/bme-grad-students/>. All new and current students have been granted access to the BMEGS Intranet. The site was designed to provide students with detailed, helpful information for each stage of their graduate careers. It includes an events/deadlines calendar, announcements, policies, advisor selection and degree planning tools, registration information, job and internship postings, forms, and more.

Students should bookmark the BMEGS Intranet site and check it frequently for updates!

## **Advising Information**

### ***General Advising***

At the start of graduate study in the Biomedical Engineering Graduate Program (BMEGP), students will be able to consult as necessary with the Director of Graduate Studies (DGS) or with the Graduate Program Coordinator.

The DGS serves as the initial advisor for all incoming graduate students and can assist with course planning, advisor selection, etc. The DGS will also serve as the primary advisor for students in the Plan C program.

The Graduate Program Coordinator can assist students with most administrative matters, such as degree planning paperwork, departmental policies, BME course permission numbers, etc.

Links to Graduate Student Services and Progress (GSSP) and BME Department forms are available on the BMEGS Intranet at <https://sites.google.com/a/umn.edu/bme-grad-students/current/forms>.

Students are responsible for keeping their *BME Graduate Program Handbook* until they have graduated from the program, since the handbook contains the particular degree requirements that pertain to each entering class. All editions of the handbook are made available on the BMEGS Intranet at <https://sites.google.com/a/umn.edu/bme-grad-students/current/handbooks>.

Students are also responsible for knowing and adhering to the Graduate Education policies outlined in the University-wide Policy Library (<http://policy.umn.edu/education>) and the relevant rules and procedures on One Stop (<http://onestop.umn.edu/>).

### ***Choosing an Advisor (Plan A and Plan B Only)***

All Plan A and Plan B students must eventually identify a permanent advisor, who will guide advisees in their remaining coursework selection, thesis/project research, and examination committee member identification.

There is no formal advisor pairing or selection process for MS students. The BMEGS Intranet has an advisor selection tool that may be of use to MS students at <https://sites.google.com/a/umn.edu/bme-grad-students/first-years/advisor-selection-ms>. Students are responsible for narrowing down their potential advisors, contacting their top choices, and ultimately securing approval from the faculty member to serve as the advisor. Upon identifying an advisor, students must notify the Graduate Program Coordinator, who will submit the Advisor Update/Change form to GSSP.

All Plan A and Plan B students must have an advisor assigned before the start of the semester in which they will register for the thesis/project credits. Until that time, the DGS will continue to serve as the advisor.

### **Course Registration**

Registration occurs online through MyU, <http://www.myu.umn.edu/>. For registration tutorials, see <http://onestop.umn.edu/howto> under Enrollment.

Registration for each semester begins approximately one month prior to the end of the previous term. Each student is required to register every fall and spring semester to maintain active graduate student status. Students must re-apply for admission to the Graduate School if their student status becomes inactive. For more information see the policy at <http://policy.umn.edu/education/maphdobjectives>.

The deadline for Fall 2016 registration is Monday, September 5, 2016 (the day before classes start). Students who are not yet registered for any credits after this date will be assessed a late fee upon initial registration.

### ***Holds***

Students must clear all registration holds each semester before they will be permitted to register. Students can monitor their holds in MyU by clicking on the Holds tab at the bottom of the page. Click the “more...” link for information about how to resolve/remove the hold. *Only the office/department that placed the hold will be able to update or clear it.*

### ***Course Numbering System***

The University of Minnesota uses a four-digit course numbering system. Graduate students must fulfill their course requirements by registering for courses at the 5000 and 8000 levels. In some cases (e.g., research-related coursework in a field/department that is outside the student’s previous experience), and with pre-approval of the advisor and DGS, a 4000-level course may be used toward degree course requirements. DGS pre-approval may be granted occasionally for a course at the 6000 or 7000 levels.

### ***Transferring Courses***

University policy states that MS students must complete at least 60% of the course credits for their degree while formally enrolled in a University of Minnesota graduate program. See



<http://policy.umn.edu/Policies/Education/Education/GRADCREDITDEGREE.html> for policy details.

Students interested in counting transfer credits toward their degree requirements should schedule an appointment to discuss transfer options with the DGS during the first semester in the program.

### ***Approvals/Permissions***

Registration for some courses may require approval in the form of a permission number. The BME Graduate Program Coordinator can only issue permission numbers for courses with the BMEn designator, and only with direct authorization of the instructor. Outside the BMEn designator, students must contact the department/instructor offering the course.

### ***Student Fees and Payment***

Students are responsible for paying all fees by the due dates defined on the original account statement. Account statements are sent to each student's University email address shortly after registration. Statements can be viewed and paid in MyU. Students who are financially supported by the department will typically have fall and spring tuition covered by their fellowships or graduate assistantships. *Various student services fees and related fees, however, are assessed to all students registered each semester and are not covered by any departmental funding.* Billing and payment information can be found online at <http://onestop.umn.edu/finances>.

## **Graduate Education Policies and Requirements**

In addition to the program requirements listed on the following pages, students are responsible for knowing and adhering to the policies and procedures set forth by the Graduate School. The following resources will be of use to students:

- <http://www.grad.umn.edu/current-students-graduate-student-services-progress/masters>  
Information for Current Master's Students from the Graduate Student Services and Progress office (GSSP) - Includes links to forms, timelines, checklists, completion and graduation procedures, thesis submission guidelines, and other information that is essential for timely completion of the degree.
- <http://www.grad.umn.edu/about/policiesgovernance/>  
Graduate Student Education Policies - Provides links to and information on policies related to graduate education. Additional policies will be posted as they are approved.

## **Master's-Plan A (thesis) Degree Requirements**

Degree Planning Tools - <https://sites.google.com/a/umn.edu/bme-grad-students/current/degree-planning>

Course Lists - <https://sites.google.com/a/umn.edu/bme-grad-students/current/course-lists>

### ***Coursework***

The MS-Plan A requires completion of at least 20 credits of classroom work, which must include the following:

- **BME Core** - 6 credits selected from the BME 5000-Level Core and/or BME 8000-Level Core lists
- **BME Graduate Seminars** - 2 credits of BME 8601 and/or BME 8602 (seminars are 1 credit per semester and may be repeated for credit)
- **Biology Electives** - 6 credits of coursework with a primarily biological emphasis
- **Technical Electives** - 6 credits of engineering/physical science/mathematics coursework offered in the College of Science and Engineering
- **Math-Stat-Intensive** - INCLUDED in the Core and/or Technical coursework must be at least 3 credits that have been approved by the DGS as Math-/Stat-Intensive. *These are not additional credits - they will overlap with other course requirements.*

All core/elective courses must be at the 5000 level or higher, unless pre-approved by the DGS. Electives may include coursework that is also being counted toward an optional Master's minor (see below).

### ***Industrial Internship***

With the consent of the DGS, a Plan A student may arrange an industrial internship (BME 8720), which requires a minimum of 3 hours per week per credit of supervised lab or industrial experience unrelated to the student's normal employment. Students must submit the BME 8720 Internship Form (available from <https://sites.google.com/a/umn.edu/bme-grad-students/current/forms>) for approval before they will be allowed to register. A maximum of 3 credits of BME 8720 may be counted toward the degree requirements as a Technical Elective.

### ***8000-Level Requirement***

All Plan A students must complete at least one 3-credit course at the 8000 level as part of their core or elective coursework. Credits of seminar (BME 8601/8602), directed research (BME 8710), internship (BME 8720), thesis (BME 8777), and independent study (BME 8910) CANNOT be used to fulfill this requirement.

### ***Completing a Master's Minor (optional)***

Plan A students may complete a Master's minor in another program if they wish. See the Graduate Education Catalog (<http://www.catalogs.umn.edu/grad/>) for more information about available minor programs and requirements.

Students are permitted to use elective coursework (Biology and/or Technical) toward both major and minor requirements when appropriate. The minor must be approved by the DGS of the program granting the minor. Students are advised to determine suitable courses for fulfillment of minor requirements early in their graduate careers. If a minor is successfully completed, it will be included on the student's official transcript.

### ***Thesis Credits***

In addition to the 20 credits of coursework, MS-Plan A students must complete 10 credits of BME Master's Thesis (BME 8777). The thesis must be based on research done by the student in collaboration with his/her advisor. Thesis credits cannot be transferred from other institutions and cannot be used towards the minimum course requirements for the degree. An MS student may register for thesis credits during any semester, with the advisor's approval.

### ***Advanced Master's Status***

Upon completion of all MS coursework and thesis credits, students may be eligible for Advanced Master's Status. Students whose applications are approved by the advisor, DGS, and GSSP can maintain their full-time student status by registering for just one credit of BME 8333 (FTE: Master's). This registration category is intended *only* for advanced MS students who have completed all their program coursework and required thesis credits, but are still working *full-time* on the research or writing of the thesis. These credits cannot be used to meet specific program course or credit requirements. Advanced Master's Status applications are available at <http://policy.umn.edu/sites/policy.umn.edu/files/forms/otr194.pdf>.

*Students must re-apply for Advanced Master's Status prior to the posted deadlines for each semester in which they intend to register for BME 8333.*

### ***Thesis Committee and Defense/Final Examination***

Upon completion of the thesis and with the approval of the committee, all MS-Plan A students must perform a Final Oral Examination in defense of the thesis.

At least one month prior to the Thesis Defense/Final Examination, students must assign their examination committee members online by following the instructions at <http://www.grad.umn.edu/current-students-graduate-student-services-progress-masters/assignmasterscommittee>. Requirements for the Master's committee are posted at <http://www.grad.umn.edu/current-students-graduate-student-services-progress-masters/masters-committee>.

At least two weeks prior to the Defense/Final Examination, students must distribute a copy of the thesis to each committee member for review. All committee members must certify that the thesis is ready for defense before the final examination may take place.

The Master's defense must be closed to the public; only the degree candidate and committee members may be present. The defense will consist of a presentation of the thesis (~30-40 minutes), followed by questions from committee members (~ 15-20 minutes). After the Q&A portion is complete, the student will be excused from the room while the committee members discuss the student's performance and vote on the outcome. A majority vote is required for the

student to pass the exam. After the decision is made, the student will be invited back into the room and informed of the result.

### ***Electronic Thesis Submission***

The Master's thesis must be submitted online to GSSP for degree requirements to be considered complete and for the degree to be conferred. Complete formatting and submission instructions are available at <http://www.grad.umn.edu/current-students-graduate-student-services-progress/thesis-submission>.

The thesis must be a well-written manuscript that is free from error and ready in its final version before submission to GSSP. Any revisions required after the final defense by the examination committee must be made and approved by the advisor (as confirmed by the advisor's signature on the signature page) prior to submission to GSSP. **Changes cannot be made to the thesis once accepted by GSSP.**

### ***Graduation and Commencement***

Graduate degrees are awarded on the last working day of the month in which the candidate completes all requirements. The degree award will appear on the candidate's transcript approximately 3 weeks following the official conferral date. Diplomas are mailed within 4-6 weeks of the official conferral date.

The Arts, Sciences, and Engineering Graduate Commencement is held each spring. Students wishing to participate in the commencement ceremony must apply to do so by the posted deadlines. See <http://gradcommencement.umn.edu/> for information, eligibility requirements, cap and gown information, and additional details. BME does not have program-specific eligibility requirements for participation in the commencement ceremony.

## **Master's-Plan B (non-thesis) Degree Requirements**

Degree Planning Tools - <https://sites.google.com/a/umn.edu/bme-grad-students/current/degree-planning>

Course Lists - <https://sites.google.com/a/umn.edu/bme-grad-students/current/course-lists>

### **Coursework**

The MS-Plan B requires completion of at least 30 credits of coursework, which must include the following:

- **BME Core** - 6 credits selected from the BME 5000-Level Core and/or BME 8000-Level Core lists
- **BME Graduate Seminars** - 2 credits of BME 8601 and/or BME 8602 (seminars are 1 credit per semester and may be repeated for credit)
- **Biology Electives** - 6 credits of coursework with a primarily biological emphasis
- **Technical Electives** - 9 credits of engineering/physical science/mathematics coursework offered in the College of Science and Engineering
- **Free Science/Technical Electives** - 5 credits of coursework in a field of science or engineering; up to 3 credits of coursework relevant to science and technology, such as public policy, ethical/historical aspects, etc., may be counted toward this requirement *with prior approval from the DGS*
- **Math-/Stat-Intensive** - INCLUDED in the Core, Technical, and/or Free coursework must be at least 3 credits that have been approved by the DGS as Math-/Stat-Intensive. *These are not additional credits - they will overlap with other course requirements.*
- **BME 8820 Plan B Project** - 2-3 credits (see **Plan B Project** section below)

All core/elective courses must be at the 5000 level or higher, unless pre-approved by the DGS.

### **Industrial Internship**

With the consent of the DGS, a Plan B student may arrange an industrial internship (BME 8720), which requires a minimum of 3 hours per week per credit of supervised lab or industrial experience unrelated to the student's normal employment. Students must submit the BME 8720 Tracking Form (available from <https://sites.google.com/a/umn.edu/bme-grad-students/current/forms>) for approval before they will be allowed to register. A maximum of 6 credits of BME 8720 may be counted toward the degree requirements (up to 3 Tech + up to 3 Free).

### **8000-Level Requirement**

All Plan B students must complete at least one 3-credit course at the 8000 level as part of their core or elective coursework. Credits of seminar (BME 8601/8602), directed research (BME 8710), internship (BME 8720), Plan B Project (BME 8820), and independent study (BME 8910) CANNOT be used to fulfill this requirement.

### ***Completing a Master's Minor (optional)***

Plan B students may complete a Master's minor in another program if they wish. See the Graduate Education Catalog (<http://www.catalogs.umn.edu/grad/>) for more information about available minor programs and requirements.

Students are permitted to use elective coursework (Biology, Technical, and/or Free) toward both major and minor requirements when appropriate. The minor must be approved by the DGS of the program granting the minor. Students are advised to determine suitable courses for fulfillment of minor requirements early in their graduate careers. If a minor is successfully completed, it will be included on the student's official transcript.

### ***Plan B Project***

As part of the required 30 credits for the MS-Plan B degree, students must complete 2-3 credits of BME 8820 Plan B Project. The project should entail approximately 50-75 hours of work per credit, performed in collaboration with a faculty advisor. Students must submit a written report of approximately 10 double-spaced pages per credit to the advisor, who will assign a letter grade for BME 8820 based on the report. In order to earn the BME 8820 grade, students must submit a final copy of the paper, with the BME 8820 Coversheet signed by the advisor, to the Graduate Program Coordinator (the coversheet is available on the BMEGS Intranet site at <https://sites.google.com/a/umn.edu/bme-grad-students/current/forms>). MS-Plan B students may register for Plan B Project credits during any semester, with the advisor's approval.

### ***Extended Plan B Project, or "Plan B+"***

Plan B students who wish to do a more in-depth research project may, with approval of the advisor, combine up to 3 credits of BME 8710 Directed Research with 2-3 credits of BME 8820 Plan B Project, for a total project of 5-6 credits (also known as Plan B+). The following policies apply to all students pursuing this option:

- Students should not enroll in both BME 8710 and BME 8820 during the same semester.
- By default, BME 8710 credits will be counted toward the Free Elective requirement only.
- A permission number is required for BME 8710 registration. The form and instructions are available at <https://sites.google.com/a/umn.edu/bme-grad-students/current/forms>. In the accompanying project description, students should indicate that they are enrolling in BME 8710 as part of the Plan B+ option.
- In order to earn the BME 8710 grade, students must submit a final copy of the paper, with the BME 8710 Coversheet signed by the advisor, to the Graduate Program Coordinator.
- The BME 8710 paper must be *separate* from the BME 8820 paper. Obviously the two will be very closely related, but work done for BME 8710 should be distinct from that done for BME 8820.

### ***Project Committee and Defense/Final Examination***

Upon completion of the project report, all MS-Plan B students must perform a Final Oral Examination in defense of the project. The Final Oral Examination will take place during a public MS-Plan B Student Poster Session, held at the end of each semester (fall, spring, summer). At that event, any student wishing to defend will present her/his poster to the research community and to her/his final examination committee.

The examination committee will consist of the student's project advisor plus two other members appointed by the DGS. Students presenting at the poster session may recruit their own committee members if they wish, but it is not required. Committee requirements are available at <https://www.grad.umn.edu/current-students-graduate-student-services-progress-masters/masters-committee>. Once the student has presented the poster to all three committee members, the student and the committee will move into a closed room to conduct the formal exam, which will consist of a brief question and answer session about the poster and project (~10-15 minutes).

Students who are not willing or able to participate in the MS-Plan B Student Poster Session will be responsible for recruiting their own committee members and for scheduling a private 30-minute poster presentation with the committee for the Final Oral Examination. Committee requirements are available at <https://www.grad.umn.edu/current-students-graduate-student-services-progress-masters/masters-committee>.

At least one week prior to the Final Oral Examination, students must distribute the project report to all their committee members so that they can read it and prepare questions. It should be clearly indicated whether the distributed report is the final version or a late-stage draft. Committee members do NOT need to certify that the paper is acceptable for defense prior to the examination.

### ***Graduation and Commencement***

Graduate degrees are awarded on the last working day of the month in which the candidate completes all requirements. The degree award will appear on the candidate's transcript approximately 3 weeks following the official conferral date. Diplomas are mailed within 4-6 weeks of the official conferral date.

The Arts, Sciences, and Engineering Graduate Commencement is held each spring. Students wishing to participate in the commencement ceremony must apply to do so by the posted deadlines. See <http://gradcommencement.umn.edu/> for information, eligibility requirements, cap and gown information, and additional details. BME does not have program-specific eligibility requirements for participation in the commencement ceremony.

## **Master's-Plan C (coursework only) Degree Requirements**

*The Plan C program is an option for part-time students only. Full-time students are not eligible for the Plan C.*

Degree Planning Tools - <https://sites.google.com/a/umn.edu/bme-grad-students/current/degree-planning>

Course Lists - <https://sites.google.com/a/umn.edu/bme-grad-students/current/course-lists>

### ***Coursework***

The MS-Plan C requires completion of at least 30 credits of coursework, which must include the following:

- **BME Core** - 6 credits selected from the BME 5000-Level Core and/or BME 8000-Level Core lists
- **BME Graduate Seminars** - 2 credits of BME 8601 and/or BME 8602 (seminars are 1 credit per semester and may be repeated for credit)
- **Biology Electives** - 6 credits of coursework with a primarily biological emphasis
- **Technical Electives** - 9 credits of engineering/physical science/mathematics coursework offered in the College of Science and Engineering
- **Free Science/Technical Electives** - 7 credits of coursework in a field of science or engineering; up to 3 credits of coursework relevant to science and technology, such as public policy, ethical/historical aspects, etc., may be counted toward this requirement *with prior approval from the DGS*
- **Math-/Stat-Intensive** - INCLUDED in the Core, Technical, and/or Free coursework must be at least 3 credits that have been approved by the DGS as Math-/Stat-Intensive. *These are not additional credits - they will overlap with other course requirements.*

All core/elective courses must be at the 5000 level or higher, unless pre-approved by the DGS.

### ***Industrial Internship***

Credit will not be given to Plan C students for Industrial Internships. The Plan C is for students who are working full-time in industry.

### ***Completing a Master's Minor (optional)***

Plan C students may complete a Master's minor in another program if they wish. See the Graduate Education Catalog (<http://www.catalogs.umn.edu/grad/>) for more information about available minor programs and requirements.

Students are permitted to use elective coursework (Biology, Technical, and/or Free) toward both major and minor requirements when appropriate. The minor must be approved by the DGS of the program granting the minor. Students are advised to determine suitable courses for fulfillment of minor requirements early in their graduate careers. If a minor is successfully completed, it will be included on the student's official transcript.



### ***Graduation and Commencement***

Graduate degrees are awarded on the last working day of the month in which the candidate completes all requirements. The degree award will appear on the candidate's transcript approximately 3 weeks following the official conferral date. Diplomas are mailed within 4-6 weeks of the official conferral date.

The Arts, Sciences, and Engineering Graduate Commencement is held each spring. Students wishing to participate in the commencement ceremony must apply to do so by the posted deadlines. See <http://gradcommencement.umn.edu/> for information, eligibility requirements, cap and gown information, and additional details. BME does not have program-specific eligibility requirements for participation in the commencement ceremony.

## **Satisfactory Progress**

The Biomedical Engineering Graduate Program requires a minimum grade of B- for any course to be counted toward the MS degree. Non-seminar/-internship classes taken S-N may be included on the degree plan only if the student provides written confirmation from the instructor that the grade would have been at least a B- on the A-F scale. In addition, the overall GPA of degree coursework must be at least 2.8.

All BME students are required to demonstrate their satisfactory progress by completing the Annual Progress Report (APR), which will be distributed by the BME Graduate Program Coordinator each summer. The student's advisor must review the APR, evaluate the student's progress, and discuss the APR with the student. After the advisor and student sign the form, it must be submitted to the program office for review by the DGS.

It is crucial that all MS students frequently consult the Degree Planning section of the BMEGS Intranet (<https://sites.google.com/a/umn.edu/bme-grad-students/current/degree-planning>), paying special attention to deadlines in order to ensure timely completion of the degree.

In addition to these general requirements, students must also meet the satisfactory progress requirements specific to their MS degree type, listed in the following sections. A summary table is also included on page 20.

*Failure to meet the requirements for satisfactory progress as described in this document is grounds for dismissal from the program.*

### ***Full-Time Combined BBmE/MS and MD/MS (Plans A and B)***

Full-time students in the Combined BBmE/MS or MD/MS programs must take at least 10 credits in the first semester of their Master's year. Before the start of the second semester, students must identify an advisor and submit the Graduate Degree Plan (<http://policy.umn.edu/sites/policy.umn.edu/files/forms/otr198.pdf>) and the MS-Plan A/MS-Plan B Course Planner (available from <https://sites.google.com/a/umn.edu/bme-grad-students/current/forms>).

All coursework and project/thesis credits must be completed within 2 semesters. Students must defend the project/thesis and graduate within 1 year (12 months) of matriculation in the MS program.

### ***Full-Time MS-Plan A***

Full-time students in the freestanding MS-Plan A program (i.e., *not* part of the combined BBmE/MS or MD/MS programs) should take at least 10 credits in their first semester. By the end of the second semester, students should identify an advisor and submit the Graduate Degree Plan (<http://policy.umn.edu/sites/policy.umn.edu/files/forms/otr198.pdf>) and the MS-Plan A Course Planner (available from <https://sites.google.com/a/umn.edu/bme-grad-students/current/forms>). All course credits must be completed within 2 semesters.

Thesis research should be initiated by the end of the second semester. Students must complete their thesis credits, defend and submit the thesis, and graduate with the MS degree within 3 semesters (not including summer), or 1.3 years from initial enrollment in the program.

### ***Full-Time MS-Plan B***

Full-time students in the freestanding MS-Plan B program (i.e., *not* part of the combined BBmE/MS or MD/MS programs) should take at least 10 credits in their first semester. By the end of the second semester, students should identify an advisor and submit the Graduate Degree Plan (<http://policy.umn.edu/sites/policy.umn.edu/files/forms/otr198.pdf>) and the MS-Plan B Course Planner (available from <https://sites.google.com/a/umn.edu/bme-grad-students/current/forms>).

Students must complete all course and project credits, defend the Plan B Project, and graduate with the MS degree within 3 semesters (not including summer), or 1.3 years from initial enrollment in the program.

### ***Part-Time MS-Plan A***

Part-time students in the Plan A program should take 3-6 credits per fall and spring semester in order to maintain satisfactory progress. Students who plan to take fewer than 3 credits in a given semester should contact the Graduate Program Coordinator at least two weeks before the semester begins. All coursework should be completed within 3 years.

Students should identify an advisor and initiate their thesis research in or before their 4<sup>th</sup> year in the program. At least one semester prior to the thesis defense, the Graduate Degree Plan (<http://policy.umn.edu/sites/policy.umn.edu/files/forms/otr198.pdf>) and MS-Plan A Course Planner (available from <https://sites.google.com/a/umn.edu/bme-grad-students/current/forms>) must be submitted and approved.

All MS students must graduate within 5 years from initial enrollment, per University policy (<http://policy.umn.edu/education/mastersperformance>, Section III-b).

### ***Part-Time MS-Plan B***

Part-time students in the Plan B program should take 3-6 credits per fall and spring semester in order to maintain satisfactory progress. Students who plan to take fewer than 3 credits in a given semester should contact the Graduate Program Coordinator at least two weeks before the semester begins. All coursework should be completed within 4 years.

Students should identify an advisor and initiate their project research in or before their 4<sup>th</sup> year in the program. At least one semester prior to the project defense, the Graduate Degree Plan (<http://policy.umn.edu/sites/policy.umn.edu/files/forms/otr198.pdf>) and MS-Plan B Course Planner (available from <https://sites.google.com/a/umn.edu/bme-grad-students/current/forms>) must be submitted and approved.

All MS students must graduate within 5 years from initial enrollment, per University policy (<http://policy.umn.edu/education/mastersperformance>, Section III-b).

### ***Part-Time MS-Plan C***

Part-time students in the Plan C program should take 3-6 credits per fall and spring semester in order to maintain satisfactory progress. Students who plan to take fewer than 3 credits in a given semester should contact the Graduate Program Coordinator at least two weeks before the semester begins. All coursework must be completed within 5 years.

At least one semester prior to graduation, the Graduate Degree Plan (<http://policy.umn.edu/sites/policy.umn.edu/files/forms/otr198.pdf>) and MS-Plan C Course Planner (available from <https://sites.google.com/a/umn.edu/bme-grad-students/current/forms>) must be submitted and approved.

All MS students must graduate within 5 years from initial enrollment, per University policy (<http://policy.umn.edu/education/mastersperformance>, Section III-b).

BME Satisfactory Progress Requirements - MS Degrees							
		Min Credits in 1 <sup>st</sup> Semester	Identify Advisor; Submit Graduate Degree Plan and Degree Supplement	Complete Coursework Within	Initiate Thesis/Project Research By Start Of	Graduate Within	
Full-Time Combined (Plans A and B)	BBmE/MS	10	Between 1 <sup>st</sup> and 2 <sup>nd</sup> semesters	2 semesters	2 <sup>nd</sup> semester	1 year	
	MD/MS	10	Between 1 <sup>st</sup> and 2 <sup>nd</sup> semesters	2 semesters	2 <sup>nd</sup> semester	1 year	
Full-Time Regular	MS-A	10	End of 2 <sup>nd</sup> semester	2 semesters	Summer after 2 <sup>nd</sup> semester	1.3 years	
	MS-B	10	End of 2 <sup>nd</sup> semester	3 semesters	3 <sup>rd</sup> semester	1.3 years	
Part-Time	MS-A	3	1 semester before thesis defense	3 years	4 <sup>th</sup> year	5 years	
	MS-B	3	1 semester before project defense	4 years	4 <sup>th</sup> year	5 years	
	MS-C	3	1 semester before graduation	5 years	n/a	5 years	

## ***Graduate Fellowships, Assistantships, and Financial Support***

*Please note that this section applies only to students who were offered financial support from the department in their letters of admission.*

All students holding graduate assistant/fellowship positions at the University of Minnesota should be familiar with the policies governing graduate student employment as outlined by the Office of Human Resources at <http://humanresources.umn.edu/find-job/graduate-assistant-jobs>. Any questions about payroll, health benefits, or tuition benefits should be directed to the BME Payroll Coordinator at [bmepayhr@umn.edu](mailto:bmepayhr@umn.edu).

Financial support for students in Biomedical Engineering is broken down into three categories: Fellowships, Research Assistantships, and Teaching Assistantships.

### ***Fellowships***

Students who have been awarded service-free fellowships (e.g., MD/MS students on the Augustine Scholarship) or external fellowships (e.g., NSF GRFP) must abide by the terms and conditions of their awards, as outlined in their fellowship offer letters.

### ***Research Assistantships***

Students who are admitted with financial support directly into a research lab will be paid almost entirely from the advisor's research grant(s) as a Research Assistant (RA). This is a service-based assistantship requiring students to perform research related to the advisor's grant-funded projects while also completing coursework for the degree.

### ***Teaching Assistantships***

Normally Master's students do not serve as TAs, unless the advisor specifically requests it. At the beginning of summer, students who have been identified for the TA pool are asked to indicate the course(s) for which they would like to TA during the next academic year. Final TA appointments are assigned by the Department Head. An attempt is made to balance the TA service among all students during their residence, within the constraints created by certain fellowships and traineeships. Depending on the TA assignment, students will be expected to spend an average of 7-27 hours per week on instruction-related duties.

### ***International Students: English Language Proficiency for Teaching Assistants***

University policy states, "All nonnative English speaking graduate and undergraduate Teaching Assistants (TAs) will demonstrate proficiency in spoken English appropriate to the demands of their teaching assistantship." (<http://policy.umn.edu/hr/language>)

To serve as a BME TA, students must achieve an English Language Proficiency (ELP) rating of '1.' Those who get a lower score will be required to enroll in supplemental English language skills coursework until they get the required score. (Students must cover their own tuition for English skills coursework if registration for those credits will delay completion of program requirements and progression to Advanced Status beyond the timeline stipulated in the **Satisfactory Progress** section of this handbook.) For more information on ELP testing, see <http://cei.umn.edu/courses-programs/international-teaching-assistant-program/testing->

[eligibility](#), or contact the Center for Educational Innovation (612-625-3041; [teachlrn@umn.edu](mailto:teachlrn@umn.edu)).

Those who do not fulfill the departmental requirements for TA eligibility jeopardize their continued graduate assistantship funding, so achieving the necessary ELP rating is extremely important.

### ***Compensation***

The first paycheck of the fall semester will be issued September 14, 2016, and will be for one week of pay only. After that, paychecks will be issued every other Wednesday and will be for two weeks of pay. The pay period/pay day schedule is available online at <http://humanresources.umn.edu/pay-and-taxes/pay-calendars>. Students should set up Direct Deposit to have their pay deposited directly into a bank account. Direct Deposit authorization and online pay statements can be accessed in MyU > My Pay.

### ***Health Benefits***

All new and continuing students holding a University of Minnesota fellowship or at least a 25% graduate assistantship are eligible for coverage on the Graduate Assistant Health Plan. See <https://shb.umn.edu/health-plans/gahp-home> for details. Submit the Enrollment Form, available from <https://shb.umn.edu/graduate-assistants/gahp-enrollment>, as soon as possible to the Graduate Program Coordinator (bmengp@umn.edu, 7-104 Hasselmo Hall). The deadline to submit an enrollment form for fall semester coverage for most students is Tuesday, September 13, 2016. All graduate assistants who are enrolled in the GA Health Plan will be charged a fee on their student account at the start of each fall and spring semester.

The University will contribute to the summer premium for graduate assistants who were enrolled in the plan during the spring semester, unless they fill out a Change or Cancellation of Coverage form (<https://shb.umn.edu/graduate-assistants/gahp-coverage-changes>). All BME graduate students are required to pay their portion of the graduate assistant health care plan premium costs.

Complete information regarding the graduate assistant health plan and dental coverage is available at <https://shb.umn.edu/health-plans/gahp-home>. For information regarding enrollment, eligibility requirements, or general questions, contact the Office of Student Health Benefits (Boynton Health, 410 Church St SE, 612-624-0627, [umgahbo@umn.edu](mailto:umgahbo@umn.edu)).

Should a student suffer an injury while performing duties as a graduate assistant, s/he must notify the supervisor as soon as physically possible following the injury. The supervisor will assess the situation, assist with arranging proper medical care, and begin the injury reporting process. Further information on the U's Workers Compensation policy is available at <http://policy.umn.edu/hr/workerscomp>.

### ***Full-Time Status for Graduate Assistants/Fellows***

Students who hold graduate assistantships/fellowships must be registered as *full-time* students during each fall and spring semester in order to maintain their eligibility, tuition

benefits, health benefits, etc. The registration requirements for maintaining full-time student status in BME are as follows:

### *Fall/Spring*

Before they have completed their thesis/project credits, students must register for 6-14 credits each fall and spring semester. The graduate assistant tuition benefit is capped at 14 credits per semester, so those who register for more than 14 credits will be responsible for paying the additional tuition themselves.

After finishing all required course and thesis credits, students are eligible for Advanced Master's Status (BME 8333). Those approved for Advanced Status need only register for 1 credit of BME 8333 each fall and spring in order to be considered full-time students. Additional information on Advanced Status is located in the ***MS-Plan A Degree Requirements*** section of this handbook.

### *Summer*

Students who are supported on graduate assistantships or fellowships SHOULD NOT register for any summer credits without the explicit, written instruction of the Director of Graduate Studies or the Graduate Program Coordinator. Students do not need to register for any credits over the summer in order to remain eligible for financial support; their assistantships, health benefits, wages, etc., will continue through the summer. Those who do register for summer classes will need to pay for those credits themselves—***the department does not cover summer tuition.*** There are exceptions, but a student (or advisor) who has questions about summer tuition should contact the Graduate Program Coordinator *before* registering!

### ***Ending a TA/RA Appointment***

Students who end their graduate assistant appointments in the middle of the semester for any reason other than graduation may be responsible for a portion of their tuition and/or health insurance coverage. Advisors may choose to cover these charges, but they are not required to do so. Students should be sure to discuss their graduation and appointment termination plans with their advisors well in advance. Questions about the impact of mid-semester graduation and/or appointment termination on student benefits may be directed to the Graduate Program Coordinator.



