University of Vermont
Biomedical Engineering Graduate Program
M.S. and Ph.D. Student Handbook

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II. INTRODUCTION

This document is intended as a guide for BME graduate students but does not include the full detail of the University of Vermont (UVM) Graduate College requirements. Consult the Graduate College for further information, https://www.uvm.edu/graduate.

The Biomedical Engineering (BME) program at UVM offers programs of study leading to Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in BME. Areas of research expertise in biomedical engineering include digital health, neuroengineering, biomaterials, biomechanics, and computational modeling.

This guide to the graduate program in BME at UVM is designed to help each student plan a program of graduate study leading to their degree. Any unanswered questions should be addressed to the student's faculty advisor, the BME Graduate Director, or the Graduate College. It is the Graduate College that awards each graduate degree so their rules must either be satisfied or subsumed by program rules.

Requirements for Admission

Prospective students must apply to the BME graduate program through the UVM Graduate College. One letter of reference is required for the accelerated master's program (AMP), two for other M.S. degrees, and three for the PhD degree. Letters from research advisors or supervisors are highly desirable and should attest to the applicant's ability to work independently in an academic setting. In addition, if an applicant is interested in financial support in the form of a Graduate Research Assistantship (GRA) or a Graduate Teaching Assistantship (GTA), they should email the program faculty members whose research interests align with theirs. Completed applications for Fall admission will be reviewed on a rolling basis, but applications received before January 1 will be given priority. For Spring admission, applications received before October 1 will be given priority.

Admission into the BME M.S. degree program requires an accredited Bachelors' degree in engineering, physics, mathematics, computer science, or a similarly appropriate field. Students entering the BME Ph.D. program should have an accredited Bachelor's or Master's degree in an appropriate field of study. Admission into the graduate program requires that the applicant have an undergraduate grade point average above 3.2 for the AMP or 3.0 for other degrees (based on a 4.0 scale), that their BME course grades are strong (B average or better), and that their letters of recommendation are positive. Graduate Record Examination (GRE) scores are not required, but applicants may submit them for consideration with the application if desired. We evaluate non-native English speakers' testing scores according to UVM Graduate College guidelines (https://www.uvm.edu/graduate/international_students). Prior coursework in engineering, computational science, and/or the life sciences is highly desirable. The ideal applicant will have a broad technical background encompassing engineering, mathematics (including differential equations and linear algebra), and science (including physics and chemistry). Specific remedial coursework may be required of those who lack a sufficiently strong background in certain areas.

Retention in the Program

For complete requirements, students must read the UVM Graduate College resources (https://www.uvm.edu/graduate/resources) and the Graduate College Requirements for the Ph.D. or M.S. (https://catalogue.uvm.edu/graduate/degreerequirements/requirementsforthedoctorofphilosophydegree/ or https://catalogue.uvm.edu/graduate/degreerequirements/requirementsforthemastersdegree/). For retention, students must maintain good academic standing (GPA 3.00) and continue to progress towards their degree requirements. In addition, students must participate in seminars or reading clubs, as appropriate.

III. MASTER OF SCIENCE IN BIOMEDICAL ENGINEERING

Program of Study

The M.S. degree in BME requires, at a minimum, 30 credit hours at the 5xxx level or higher and the completion of a comprehensive examination. To bolster background knowledge and with pre-approval from the Graduate College and the student's advisor, a student may apply up to three credits of 3xxx or 4xxx level coursework to their M.S. degree requirements.

Students can choose, in consultation with their graduate advisor or the BME Graduate Director, between the Thesis, Project, or Coursework options. M.S. students are rarely funded, and only Thesis option students are eligible for GTA or GRA funding, which requires approval from a thesis advisor and a signed offer letter from the EBE Department. Table 1 summarizes the requirements for the three M.S. BME degree options.

Table 1. M.S. Requirements for thesis, project, and coursework options.

Requirement	M.S. Thesis	M.S. Project	M.S. Coursework
Total Credits	≥30 credits, selected with guidance from faculty advisor. At least 6 credits of coursework must have a BME designation (thesis or project credits are excluded) and at least 6 credits must be at the 6xxx-level (thesis or project credits are excluded).		
Engineering Courses	≥15 credits of engineering coursework (Prefix BME, EE, ME, CS, CEMS, EMGT, ENGR, CMPE, or CEE) at the 5xxx-level and above (thesis or project credits are excluded).		
Elective Courses Selected from BME or related courses in STEM	≥9 credits	≥9 credits	15 credits; no thesis or research credits permitted
Thesis or Project credits	≥ 6 credits of BME 6391 supervised by BME graduate program faculty member	Exactly 3 credits of BME 6995 Independent Graduate Research, taken in next-to-last semester of project work, and 3 credits of BME 6993 MS Project, taken in final semester of project work, supervised by 2 faculty*	N/A
Comprehensive Exam	Orally present a proposal for thesis research to thesis committee at least 3 months prior to last day of classes of the semester in which the student intends to graduate*	Written proposal for project submitted in BME 6995. Requires approval by the 2 supervising faculty*	Present at Spring BME Student Symposium. Presentation must meet requirements as assessed by BME faculty*
Degree Capstone	A thesis must be completed, under the supervision of a BME graduate program faculty member. The written thesis must meet Graduate College requirements and be defended orally in a public forum.*	Present at Spring BME Student Symposium on the project. Presentation must meet requirements as assessed by BME faculty.*	N/A
Forms Required	Comprehensive Exam, Defense Committee Membership, Defense Notice, Thesis and Dissertation Rights and Permission, Intent to Graduate	Comprehensive Exam, Intent to Graduate	Comprehensive Exam, Intent to Graduate

*See below for additional details

Thesis Option Requirements

Students will select a primary research advisor from the list of affiliated Biomedical Engineering faculty

by the end of the first semester of enrollment and form a graduate studies committee by the end of the first year of enrollment. The student's graduate studies committee will be comprised of three UVM faculty members, at least two of whom must be regular members of the graduate faculty. One committee member must be the thesis advisor, and a second must be a different faculty member from the BME program. The third member, who acts as chair of the committee, must be a member of the graduate faculty and must be from a different program and department than the candidate and advisor. Committee members external to UVM must be approved by the Graduate College prior to serving. It is the responsibility of the graduate studies committee to supervise the graduate student's program of study and to review progress at regular intervals. Before the thesis defense takes place, the graduate studies committee will be replaced by a defense committee who will evaluate the student's thesis defense. This committee has the same membership requirements as the graduate studies committee. The defense committee and the graduate studies committee do not have to be the same but frequently are.

Thesis Option Comprehensive Exam

The comprehensive exam for M.S. BME thesis students is an orally presented research proposal and must be completed at least 3 months prior to the last day of classes of the semester in which the candidate intends to graduate. The proposal will take place in front of the candidate's graduate studies or defense committee, and it will be open to UVM students and faculty. The proposal meeting will begin with a statement of the ground rules for the meeting given by the committee chair and a brief introduction from the candidate's thesis advisor. The candidate will then give a presentation (typically 30 minutes) in which their research progress to date is outlined and plans for the completion of the thesis are described. The candidate must present a tentative table of contents for the thesis as well as an estimated timeline of completion of their degree. The candidate's presentation will be followed by questions from the audience and then questions from the committee in closed session. The committee will then deliberate in private after which its recommendations will be passed to the candidate. The entire thesis proposal meeting will take roughly 90 minutes.

The purpose of the proposal is to satisfy the committee members that the candidate is on track toward the completion of their thesis and that the research contained within it will meet the standards of scholarship required for the M.S. degree. One re-examination is permitted for a failed comprehensive examination. The Proof of Successful Completion of Comprehensive Exam form should be submitted, and the BME Graduate Director should be informed of the successful completion.

Thesis Defense

The Graduate College resources (https://www.uvm.edu/graduate/academic-resources) must be carefully utilized during this process; specifically, the Defense Committee Membership form, Intent to Graduate form, and Defense Notice must be submitted in addition to conducting a format/record check. The Thesis/Dissertation Guidelines and Timetable, which are available on the Graduate College website, must be closely followed.

The defense of a M.S. thesis will take place at the discretion of the candidate and their supervisor at a point when the thesis is complete and has been distributed (at least 2 weeks prior) to the members of the committee. A Public Notice of the defense is required at least 3 weeks prior to the scheduled defense date in order for the student to defend.

The defense will begin with a statement of the ground rules for the meeting given by the committee chair and a brief introduction from the candidate's supervisor. The candidate will then present their research in about 45 minutes. This will be followed by questions from the audience and then questions from the examining committee in a closed session. The committee will then deliberate in private after which its

recommendations will be passed to the candidate. The entire dissertation defense will take approximately 2 hours. If a student's defense examination performance is not satisfactory, then one reexamination, and one only, is permitted.

Project Option Comprehensive Exam and Final Poster Presentation
A project is defined for the purposes of the M.S. Project degree path as an engineering product with a needs statement, an iterative approach, testing, and a design goal or output that can be evaluated by faculty mentors as meeting the standards of scholarship. The result can be a physical object, code, or any other product that fits the definition above.

The project topic is selected by the student in consultation with a supervising faculty member and must not be the same as any project performed as part of a paid position. If the faculty supervising the project is not a BME graduate faculty, approval for the topic should be sought from the BME Graduate Director. The proposal and project must be approved by 2 faculty mentors, one of whom is the supervising faculty and at least one of whom must be BME faculty. The project spans two semesters. The student must register for "BME 6995 Independent Graduate Research" during the next-to-last semester and "BME 6993 Independent Study: MS Project" in the last semester.

For the comprehensive exam, the student must write a proposal for the M.S. project, which is one of the requirements of BME 6995. The proposal must be evaluated by the 2 faculty project mentors, one of whom will directly supervise the project, and at least one of whom must be a BME faculty member. The student will be evaluated as to whether they have a reasonable plan to complete a project that meets the M.S. standards of scholarship. If failed, one re-examination is permitted. Upon passing, the Successful Completion of Comprehensive Exam form should be submitted.

The completed project must be presented in a public forum, most typically the Spring BME Student Symposium. A presentation at a substantially similar venue may meet this requirement, but an assessment plan must be pre-approved by the BME Graduate Program Director. The student must present the work and discuss it with attendees. The presentation must take place at least 1 week before the last class day of the semester in which the student intends to graduate. At least 2 BME faculty members will view the presentation, ask questions, and evaluate the presentation to assess quality. If unsatisfactory, the student must successfully complete an oral examination on the project, administered by the 2 faculty project mentors and the BME Graduate Program Director.

Coursework Option Comprehensive Exam
The M.S. Coursework students must give a presentation in a public forum, most typically the Spring BME Student Symposium, on how their BME coursework has prepared them for their career goals. A presentation at a substantially similar venue may meet this requirement, but an assessment plan must be pre-approved by the BME Graduate Program Director. The presentation must take place at least 1 week before the last class day of the semester in which the student intends to graduate. The student must present the work and discuss it with attendees. At least 2 BME faculty members will evaluate the presentation to assess quality and ask questions about course content. If the student does not meet this threshold, the Graduate Program Director and the student's advisor will jointly select two or more courses at the level of BME 5xxx or above and will provide the student with an oral exam on this course material. The student must complete this exam at the B+ level or better.

Accelerated Master's Program
Qualified UVM undergraduate students who would like to earn a M.S. degree in BME may apply for the program's Accelerated M.S. Degree Program (AMP). This program enables the student to begin working

on a master's degree while still an undergraduate student. The basic requirements for admission to and completion of this program are as follows:

- Interested students may apply to the AMP beginning in the first semester of their junior year and are encouraged to apply by April 15th of spring semester of junior year.
- In order to be admitted to the AMP, the student must have a cumulative grade point average of at least 3.2 at the time of application, and (if pursuing the project or thesis option) they must include a statement indicating which faculty member has agreed to serve as their graduate advisor in their application. If the proposed advisor is not on the list of affiliated BME faculty, this must be approved by the BME graduate program director.
- Upon being admitted into the AMP, the student may take up to 9 credit hours of courses for graduate credit while still an undergraduate. Of these, up to 6 credit hours of 5xxx level or higher courses can be counted toward both the B.S. and M.S. degrees, subject to the approval of the student's graduate advisor.
- AMP students are <u>not</u> permitted to count 3xxx or 4xxx level coursework for graduate credit prior to earning their B.S. degree. They <u>can</u> count up to 3 credits of 3xxx or 4xxx level coursework for graduate credit once they have earned their B.S. degree and the M.S. is their primary curriculum.

All other requirements for the M.S. degree apply, and students must select the Thesis, Project, or Coursework option. AMP students are not typically eligible for GTA or GRA funding. While the AMP M.S. Coursework and Project options are typically completed in one year, the M.S. Thesis is the same rigorous research pathway as the traditional M.S. Thesis and should be expected to take more than one academic year. Students who pursue the AMP Thesis option may begin work toward their master's thesis as early as the summer following their junior year. All thesis requirements delineated above must be met.

IV. DOCTOR OF PHILOSOPHY IN BIOMEDICAL ENGINEERING

Program of Study

Students will have a primary research advisor from the list of affiliated Biomedical Engineering faculty, and they must form a graduate studies committee by the end of the first year of enrollment. The student's graduate studies committee will be comprised of four regular members of the graduate faculty . The chair of the graduate studies committee serves as the student's academic advisor and also as the dissertation advisor or supervisor. The graduate studies committee should be approved by the BME Graduate Director (reporting it on the student's annual review form serves as notification). Committee members external to UVM must be approved by the Graduate College prior to serving. It is the responsibility of the graduate studies committee to supervise the graduate student's program and to review progress at least annually (via the student's annual review form). Students must take at least 75 credits in courses and dissertation research including 15 credits of Core Courses, at least 15 credits of Technical Electives, and a minimum of 20 credits of dissertation research. A minimum of 9 credits of coursework must be at the 6000-level or above. To bolster their background in a particular area and with pre-approval from the Graduate College and the student's advisor, a Ph.D. student may apply up to six credits of 2xxx, 3xxx, or 4xxx level coursework to their Ph.D. degree requirements.

Students are required to develop an **Individual Development Plan** (https://www.uvm.edu/graduate/individual-development-plan) annually and discuss it with their primary advisor and graduate studies committee. An IDP and annual review for each student must be submitted to the BME Graduate Director by the end of each Spring semester.

Biomedical Engineering Core Courses (at least 15 credits)

The core courses required of all Biomedical Engineering Ph.D. students are:

- Biomedical Engineering courses (BME 5xxx or above) (6 credits)
- Human Physiology (MPBP 6010 Human Physiology & Pharmacology) (or equivalent with permission of BME Graduate Program Director) (3 credits)
- Mathematics or Statistics Course (MATH or STAT 5xxx or above) (3 credits)
- Research Ethics Course (CEMS 6010 Research Methods, Ethics, and Communication, NSCI 6270 Responsible Conduct in Biomedical Research, PBIO 3990 Ethics in Graduate Research, or NFS 6362 Intro to Research Methods) (1 credit)
- Research Communication Course (CLBI 6020 Science Communication, MPBP 6300 Biomedical Grantsmanship, IHS 7300 Seminar and Practicum in Health Professions Teaching, or IHS 7500 Professional Writing and Grantsmanship) (2 credits)

Note that students may pursue alternatives to any of the above core courses as befits the goals of their graduate training, but this requires approval from the research advisor and BME Graduate Director. Substitutions for the "Biomedical Engineering courses" category must be from an engineering discipline (Prefix BME, EE, ME, CS, CEMS, EMGT, ENGR, CMPE, or CEE). A student wishing to make a substitution should submit a justification in writing to the BME Graduate Director. The student should provide the following documentation when submitting their request: current copies of the syllabi of the course they are proposing to replace and its proposed replacement as well as a statement about why the proposed course would be more suitable for their research area. Advice on equivalent options if listed courses are not available should be sought from the BME Graduate Director.

Technical Electives (at least 15 credits)

Any BHSC, BIOC, BIOL, BME, CEE, CEMS, CHEM, CLBI, CMPE, CS, CSYS, DPT, EE, EMGT, ENGR, ENSC, EXSC, HLTH, MATH, ME, MLS, MMG, MPBP, NSCI, OT, PATH, PH, PHRM, PHYS, RAD, or STAT course at the 5xxx-level or above. Students may take courses in areas germane to their research that are *not* included on this list with prior approval from their graduate studies committee.

Teaching Requirement

BME PhD students must complete a teaching experience during their degree. This requirement may be fulfilled by any one of the following:

1. Present at three research seminars at UVM (not including the Spring BME Student Symposium),
2. Give one oral presentation at a scientific conference, or
3. Serve as a GTA for one semester.

Ph.D. Comprehensive Exam

The comprehensive exam for the Biomedical Engineering Ph.D. is typically taken by the end of a candidate's fourth semester of study and will consist of a written exam and an oral exam. Should the candidate fail the examination, only one reexamination is permitted. The intent of the comprehensive exam is primarily to judge the student's foundational knowledge and research ability at a level that is suitable for the PhD program. This is separate from the dissertation proposal, which is focused on research progress.

The Written Exam

The written part of the examination will be a report written in the form of a research grant proposal (7-12 pages) and delivered to the student's graduate studies committee at least 2 weeks before the oral exam. The proposal will be based on a research idea in the candidate's dissertation work area and will comprise three Specific Aims. The first two aims will be focused on the area of the candidate's Ph.D. research and will be expected to include some preliminary data and a research plan that is grounded in techniques that the candidate understands well. The third aim will be a "stretch aim" that extends beyond the scope of the candidate's research. In this third aim, the candidate will be expected to exhibit evidence of an ability to generate imaginative and thoughtful hypotheses and to think laterally about how their Ph.D. research area could be developed in a new direction. The candidate should gain the approval of their graduate studies committee regarding the general area of the proposal before beginning work on it. The student may seek the advice of their research advisor and graduate studies committee, but the contents of the document should be original work created by the student.

The report will follow the format of the research plan for an R01 grant submission to the NIH, although it is not expected that as much preliminary data will be included as would be expected for a typical R01. Detailed instructions about R01 proposals can be found at:https://grants.nih.gov/grants/how-to-apply-application-guide/forms-i/research-forms-i.pdf#page=80.03. However, for the purposes of the comprehensive exam, the R01 components that must be included in the report are:

A. Specific Aims (1 page): This gives an overview of the proposal and will typically provide an overarching hypothesis and/or goal, together with a maximum of 3 specific aims that are to be accomplished over a projected 5-year period of research.

B. Research Strategy (6-12 pages): This section provides a detailed description of the research that will be undertaken, including any figures and tables, and is divided into 3 sections.

   a) **Significance**. Describe how the proposed research is significant to the field of investigation as well as to biomedical engineering in general. Give appropriate background as needed to make the case.

   b) **Innovation**. Explain how the proposed research is novel. The Significance and Innovation sections are typically not more than 1 page together.

   c) **Approach**. This is the main body of the proposal and provides the preliminary data and experimental design necessary to support each specific aim. The Approach should address the

hypothesis(es) and/or goal(s) put forward in the Specific Aims page. Appropriate statistical methods should be described, including calculations to justify sample sizes (i.e., power analysis) for experiments involving replicates.

C. References (no page limit)

These components must be prepared on 8.5 x 11-inch pages with 0.5-inch margins. The text should be in 11-point Arial font and line spacing set at 12 points. The proposal must deal substantively with both the engineering and the biological aspects of the proposed research. The engineering component will include a description of the project's design, analysis, and/or modeling aspects and must include appropriate attention to mathematical and statistical details. The biological component of the proposal should be hypothesis-driven and will explain the historical context of the project, the biomedical background that is appropriate, and the potential significance of the work. The proposal will also include:

a) alternative engineering methods that could be used on their biological question of interest (i.e., methods other than those to be used in the dissertation), and

b) alternative biological systems (other than those in the dissertation project) that could be studied using the engineering methods of the dissertation project.

These latter two aspects of the report will allow the student to demonstrate an ability to generalize both in terms of the application of engineering methods and approaches to biological problem-solving.

The Oral Exam

The oral part of the comprehensive examination will be a formal seminar by the student in front of their graduate studies committee, to take place after the committee members have had a chance to review the written proposal, which must be submitted at least 2 weeks before the oral presentation.

The oral exam begins with a 30-to-40-minute oral presentation by the student that summarizes and defends the material in the written proposal. The student should prepare slides for this presentation. The student will then be asked to answer any additional questions the committee members feel appropriate after the seminar. It is expected that there will be specific questions directly associated with the student's proposed topic, as well as related questions spanning principles of engineering and biomedical sciences. The entire comprehensive exam meeting will take roughly 90 minutes.

After the oral part of the exam, the committee will meet to discuss both written and verbal components. The committee will then decide if the student can proceed to complete the Ph.D.; if the exam needs to be retaken; or (in the case of repeat failure) if the student may be allowed to complete work for a master's degree. If successful, the Proof of Successful Completion of Comprehensive Exam form must be submitted to the BME Graduate Director and Graduate College.

Dissertation Proposal

Students will present a proposal around the end of the 6th semester (i.e., third year) of study. The proposal will take place in front of the candidate's dissertation committee, and it will be open to UVM students and faculty. Committee membership must meet the Requirements for the Doctor of Philosophy degree stipulations (https://catalogue.uvm.edu/graduate/degreerequirements/). The proposal meeting will begin with a statement of the ground rules for the meeting given by the committee chair and a brief introduction from the candidate's supervisor. The candidate will then give a presentation (typically 45 minutes) in which their research progress to date is outlined and plans for the completion of the dissertation are described.

The candidate must prepare a tentative table of contents for the dissertation with a brief paragraph

describing what they anticipate will be the subject of each major chapter (including the focus of their literature review) and forward this to the committee at least 1 week prior to the meeting. A public notice of the proposal presentation should be sent at least 2 weeks prior to the scheduled proposal date.

The candidate's presentation will be followed by questions from the audience and then questions from the dissertation committee in closed session. The committee will then deliberate in private after which its recommendations will be passed to the candidate. The entire dissertation proposal meeting will take roughly 90 minutes.

The purpose of the dissertation proposal is to satisfy the dissertation committee members that (1) the candidate is on track toward the completion of their dissertation and that (2) the proposed dissertation research will meet the standards of scholarship and originality required for a Ph.D. degree from the BME program. The dissertation committee may suggest adjustments to improve the quality and rigor of the proposed research. The committee may also suggest changes to the direction or nature of the proposed research, if needed to satisfy the scope BME Ph.D. degree from UVM. The candidate should regularly consult with their research advisor, collaborators, and dissertation committee members to ensure that their proposed research is of sufficient quality and of appropriate scope for a successful dissertation proposal. The BME Graduate Director should be informed of the successful completion of the dissertation proposal.

Dissertation Defense

The Graduate College resources must be carefully utilized during this process; specifically, the Defense Committee Membership form, Intent to Graduate form, and Defense Notice form must be submitted in addition to conducting a format/record check. The Thesis/Dissertation Guidelines and Timetable, which are available on the Graduate College website, must be closely followed.

The dissertation defense committee consists of a minimum of 4 members of the graduate faculty. If a student has co-advisors, they count as one defense committee member. At least two graduate faculty members must be from inside the BME program. The chair must be both a member of the graduate faculty and from outside the candidate's and advisor's department and program. The dissertation defense examination committee must be approved by the Graduate College prior to the defense via the Defense Committee Membership form. The dissertation defense committee and the graduate studies committee do not have to be the same.

The defense of a Ph.D. dissertation will take place at the discretion of the candidate and their supervisor at a point when the dissertation is complete and has been distributed (at least 2 weeks prior) to the members of the committee. A Public Notice of the defense is required at least 3 weeks prior to the scheduled defense date in order for the student to defend.

The defense will begin with a statement of the ground rules for the meeting given by the committee chair and a brief introduction from the candidate's supervisor. The candidate will then present their research in about 45 minutes to an hour. This will be followed by questions from the audience and then questions from the examining committee in a closed session. The committee will then deliberate in private after which its recommendations will be passed to the candidate. The entire dissertation defense will take 2-3 hours. If a student's defense examination performance is not satisfactory, then one reexamination, and one only, is permitted.

V. APPENDIX

Biomedical Engineering Ph.D. Degree Check Sheet

Revised: 03-25-26

Student Name: _____

Committee Membership:

Name	Department
_____ Chair	_____
_____ Advisor	_____
_____ Member	_____
_____ External Member	_____

Core Courses (15 credits)

The following courses are required. Write the course number, name, and semester taken.

1. Biomedical Engineering Courses (6 credits): _____
   _____
2. Human Physiology (3 credits): _____
3. Math or Statistics Course (3 credits): _____
4. Ethics Course (1 credit): _____
5. Research Communication Course (2 credits): _____

☐ _____
Date Completed

Technical Electives (≥15 credits)

A minimum of 14 credits of BHSC, BIOC, BIOL, BME, CEE, CEMS, CHEM, CLBI, CMPE, CS, CSYS, DPT, EE, EMGT, ENGR, ENSC, EXSC, HLTH, MATH, ME, MLS, MMG, MPBP, NSCI, OT, PATH, PH, PHRM, PHYS, RAD, or STAT courses at the 5xxx-level or above.

1. Course: _____
2. Course: _____
3. Course: _____
4. Course: _____
5. Course: _____

☐ _____
Date Completed

Coursework at 6xxx level or above (9 credits, can include the above)

☐ _____
Date Completed

Research Credits (≥20 credits so that courses + research credits ≥75)

☐ _____
Date Completed

Teaching requirement

Complete one of the following:

1. Present at three research seminars at UVM (not including the Spring BME Student Symposium),
2. Give one oral presentation at a scientific conference, or
3. Serve as a GTA for one semester

☐ _____
Date Completed

Comprehensive Examination

(Typically complete by the end of the 4th semester of study)

☐ _____
Date Completed

Dissertation

Proposal

(Complete around the end of the 6th semester of study)

☐ _____
Date Completed

Defense

☐ _____
Date Completed