

School of Biomedical Engineering

M.S. and Ph.D. Manual

Committee

Your committee must consist of at least three faculty members for a master's degree program and at least four for a doctoral degree program. The members are as follows:

- 1) the adviser who serves as chairperson of the committee and who must hold academic faculty rank as a professor, associate professor, or assistant professor of any appointment type within the SBME Core Faculty;
- 2) one or more additional Core Faculty Members from SBME;
- 3) any non-SBME faculty member who may be appropriate (non-Core Faculty Member);
- 4) one member from an outside department who, appointed by the Vice Provost for Graduate Studies, represents the Graduate School. The outside committee member appointed by the Vice Provost for Graduate Studies must hold a regular, special, transitional, joint, or emeritus/emerita faculty appointment at Colorado State University. The outside member cannot be from your faculty advisor's home department (but can be a Core Faculty Member from SBME).

Individuals who are not academic faculty but who have special expertise may serve on committees in addition to the prescribed members, but may not vote regarding examination results.

GS6 (Program of Study)

Each graduate student must prepare a GS6 (Program of Study), a document which lists all courses taken in pursuit of the degree. The faculty advisor and committee are heavily involved in the development of the GS6 form. The GS6 form must be filed with the Graduate School before the time of the fourth regular semester registration. Students who fail to meet this requirement may be denied subsequent registration.

Prior to filling out the electronic GS6 Program of Study form (eGS6), it is highly recommended that the student access the GS6 Program of Study Worksheet from the Graduate School website, and meet with his/her faculty advisor to form a draft of what courses and committee members will be listed on the student's GS6 form.

The student will access the eGS6 form via his/her RAMweb account under the "Complete My GS6 Program of Study" link and will fill out the following steps:

- a) Review student information and add an area of study, if applicable.
- b) Add required courses that the student has completed at CSU prior to admission to Graduate School, if applicable.
- c) Add required courses that the student has completed at CSU after admission to Graduate School.
- d) Add required courses that the student will complete at CSU.
- e) Specify whether or not the student will be completing a thesis requirement, if applicable.

Once the student enters the above information, the student will be able to review his/her course information and submit the form electronically. The student's GS6 form will then be available for printing and a copy will be sent to the student via e-mail. After the student prints his/her GS6 form, the student will need to write in the following information on his/her GS6:

- a) Transfer credits from other institutions, if applicable.
- b) Master's degree information if a previously earned master's degree will be used as part of a Ph.D. program (if applicable and for Ph.D. students only).
- c) The names and CSU ID numbers of the student's faculty advisor, co-advisor (if applicable), committee members, and outside committee member. The student is responsible for contacting all committee members and asking if they are willing and able to serve on the committee. SBME staff can provide students with the CSU ID numbers.

The student will need to sign his/her GS6 form and obtain the signatures of his/her faculty advisor, co-advisor (if applicable), and department head and then submit the GS6 form to the Graduate School for final processing. It is the student's responsibility to submit a copy of the GS6 to the SBME office staff and file the original with the Graduate School. The Graduate School will notify the student, the faculty advisor, and the department via e-mail once the GS6 form has been approved.

The GS6 can be modified at anytime by the student and committee. If a student's course of study changes (e.g.: they decide to take a different class(es) than originally listed), they must update the GS6 to accurately reflect the coursework they plan to use to satisfy degree requirements and the membership of their MS or PhD committee prior to applying for graduation. Note that only the minimum number of credits required for graduation need to be shown on the GS6 (e.g.: the student can always take more classes than on their GS6). However, Courses which have been taken and for which a grade has been received (A through F, I, S or U) may not be removed from the Program of Study.

Qualifying Process (Ph.D. students only)

Purpose: The purpose of the Qualifying Process is to determine the student's knowledge in the core biomedical engineering curriculum.

Procedure: Every Ph.D. student must pass all core classes with a B or higher. If a student transfers in with the equivalent of one of the classes, they will not be required to retake the course, but will be expected to take the final exam in the course and pass it with a B or higher. If a student does not pass the course/final exam, they will be given one opportunity to repeat the course.

Once the student has successfully completed the Qualifying Process, the student must complete the GS14 (Report of Departmental Examination) and obtain appropriate signatures. It is the responsibility of the student to provide a copy of the GS14 to the SBME office staff and file the original with the Graduate School.

Discussions (Ph.D. students only)

Purpose: The purpose of the discussions are to determine annual satisfactory progress towards the coursework and research required to complete the Ph.D.

Procedure: At the end of each academic year, every Ph.D. student must meet with their committee and have a discussion regarding their progress over the last year. Lab rotation students will meet with the three faculty advisors with whom they worked. It is the responsibility of the student to arrange this meeting.

Following each discussion, the faculty advisor will submit an Annual SBME Student Evaluation to the SBME office as part of a progression portfolio. Please contact SBME staff for the Annual SBME Student Evaluation. Failure to complete these discussions may be deemed as no making satisfactory progress by the student's committee.

Preliminary Examination (Ph.D. students only)

Purpose: The purpose of the preliminary examination is to determine the candidate's background knowledge in the proposed dissertation area and to determine the adequacy of the current research plan. Upon successful completion of the exam, the committee and student have an outline of the research plan and of expectations for the student's dissertation.

Scheduling: The student is expected to take this exam after an extensive literature review in the area and collection of preliminary data. At the time of the exam, the student must have already selected a major professor (faculty advisor) and graduate committee, and must have been working with the major professor on

the definition of the research leading to the dissertation. The student has a maximum of two opportunities to pass the exam. The preliminary exam must be completed at least two terms prior to the final dissertation defense. It is advised that the student complete the preliminary exam within a year after successfully completing the qualifying process and before performing the bulk of their research.

Procedure: The student must provide a written research proposal (detailed survey of supporting literature, significance and theoretical basis of the planned research, experimental design, and any preliminary data) to each member of the committee and the SBME office staff at least one week prior to the exam date. Any SBME Core Faculty member can request a copy of the proposal before the examination. The student must also provide SBME office staff with the title and abstract as well as the scheduled date, time and location of the exam abstract one week prior to the exam date. The Preliminary Examination is open to the public, but not advertised by the SBME staff.

The exam will consist of the student's ~30 minute presentation of the research proposal, followed by questions from the public (if any) followed by questions from the committee, in closed session with the student to further assess the preparedness of the student to continue. Then, the committee will meet in closed session without the student for analysis and voting on the proposal as well as to determine recommendations for changes in the plan (if any). The student and faculty advisor will prepare a rough outline of the changes to the research plan suggested by the committee in the Preliminary Exam that will be added to the student's file. The student's faculty advisor will be responsible for bringing the student's folder to the exam. It is the student's responsibility to bring a GS16 (Report of Preliminary Examination for the Ph.D. Degree) prepared for signatures to the exam.

Results: By completing and signing the GS16 Form, the committee shall:

1. Pass – Recommend the student advance to Ph.D. candidacy and accept the research plan as agreed to by the committee during the exam. If a majority of the committee members vote to pass, the student passes.
2. Fail – Recommend that the student take the Preliminary Examination again, if the student's research plan or background knowledge is unacceptable but the committee feels that the potential exist for satisfactory performance. If a majority of the committee members vote to fail, the student fails.
3. Terminate – If a majority of the committee members vote to terminate, the student will be recommended for termination from the program.

Within two days following the examination, the student is required provide a copy of the GS16 to the SBME office staff and file the original with the Graduate School.

Thesis (M.S)/Dissertation (Ph.D.) Defense (Final Examination)

Purpose: The purpose of the final examination is to allow faculty members and the public to examine critically and comment on the thesis/dissertation work and its significance and contribution to the literature.

Scheduling: Upon completion of the research, the candidate must furnish to each committee member a preliminary copy of the thesis at least one week before / dissertation at least two weeks before the scheduled date of the defense. Upon approval of the faculty advisor, the candidate may schedule the thesis/dissertation defense. The student must provide the SBME office staff with the title and abstract as well as the scheduled date, time and location of the defense two weeks prior to the exam date. The SBME office staff are responsible for announcing the exam to faculty, staff and graduate students and listing it under events in "Today @ Colorado State."

Procedure: Final examinations are open to the public and are conducted in a formal and professional manner. The student's faculty advisor (major professor) will be responsible for bringing the student's file to the presentation. The student is responsible for bringing the GS24 (Report of Final Examination Results) and signature pages to the presentation. To begin the presentation, the candidate is introduced by the faculty

advisor. The candidate then presents the findings of the master/doctoral research to the committee and to the public (30-45 min for MS and 40-50 min for PhD). After the presentation, questions are invited from all present. Then the public (all but student and committee) will be excused for the closed portion of the examination. The committee will ask the student to “defend” their work with questions that arise specifically from the thesis/dissertation research and more general questions related to research and biomedical engineering.

Results: A student “passes” their dissertation if a majority of their committee votes to “pass”. It is the student’s responsibility to get a copy of the GS24 to the SBME office and original to the Graduate School within two working days after the results of the examination are known. The committee may then elect to accept the written thesis/dissertation document substantially as is (minor revisions) or to request more significant, major revisions. In the case of the former, the committee may sign the thesis/dissertation signature pages (printed in correct format on correct paper per the Graduate School guidelines) at the final defense. In the case of the latter, committee member(s) may elect to withhold their signature from the signature page until satisfied with edits/changes to document.

The candidate must submit, to the Graduate School the GS24 and an electronic version of the thesis/dissertation prior to the end of the twelfth week of the graduation term for fall or spring semester and prior to the end of the fifth week of the eight-week summer term. The student is responsible for submitting signed copies of the GS24 as well as an electronic version of the thesis/dissertation to the Graduate School. There are specific guidelines for the formatting of the final thesis/dissertation. It is the responsibility of the student to review and abide by these rules outlined on the Graduate School web site as well specific deadlines as outlined. (Submit the thesis/dissertation electronically to ProQuest/UMI. Complete instructions for electronic submission are located on the Electronic Thesis and Dissertation (ETD) website, <http://www.graduateschool.colostate.edu/current-students/thesis-dissertation/index.aspx>.)

**Special Note:* On the title page and abstract of your thesis/dissertation, it will ask you for your department, you must put “Graduate Degree Program in Bioengineering”.

Quality of Work

Any student not making satisfactory progress as determined by his or her graduate committee, or whose cumulative grade point average is less than B (3.0), shall be automatically placed on academic probation. A student on probation can NOT be a GRA or GTA. Newly admitted students will not be placed on probation until after completion of the 12 credits or two semesters, whichever comes first. Failure to bring the cumulative graduate GPA to at least 3.0 will result in dismissal from the Graduate School.

A student’s individual graduate advisory committee or an appropriate departmental graduate committee may recommend immediate dismissal upon finding that the student is making unsatisfactory progress toward the degree and that satisfactory progress cannot reasonably be anticipated. Such a recommendation must be documented in writing with substantive justification for this action in lieu of probation. It must be referred to the SBME Director for approval and the Dean of the Graduate School for final action. The student may appeal such an immediate dismissal through the existing Graduate School grievance procedure.

In special studies, departmental seminars, and research, students must earn an S, or average B or better. Averages in the category of formal course work and in the category of research, special studies and seminars are determined independently. Additionally, the School of Biomedical Engineering may choose to place the student on probation for falling below a 3.0 average, in either area, in any single semester.

To be eligible for graduation, a student must maintain at least a B average in formal course work and satisfactory grades in research, special studies, and seminars, included in the Program of Study (GS6). Work graded C-, D, F, and U will not be accepted toward degree requirements. Grades of I (incomplete) must be

replaced with appropriate letter grades within twelve months or the credits involved will not be accepted toward degree requirements and will automatically revert to an “F” grade.

****NOTE:** *All graduate students are responsible for reading, understanding, and abiding by the CSU Graduate Bulletin (<http://graduateschool.colostate.edu/index.asp?url=catalog>)*