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Table of Contents

Foreword ........................................................................................................... 5
Overview of Bioengineering Faculty Appointments................................................. 6

Section 1: Scholarly Conduct and Statement of Ethics .............................................. 7
Honor Code ........................................................................................................... 7-8

Section 2: Research Areas in the Department of Bioengineering ............................... 9
The Five Research Focus Areas .............................................................................. 9
Special Opportunities For Study ............................................................................ 9
Dual Degree in Bioengineering and Nanotechnology .............................................. 9
Program on Technology Commercialization ....................................................... 9
Technology Entrepreneurship Certificate ............................................................ 9-10
Additional Opportunities ....................................................................................... 10

Section 3: The PhD Program .................................................................................. 11
Expected Prerequisites .......................................................................................... 11
General Requirements for the PhD Degree .......................................................... 11
Specific Course Requirements for the PhD Degree ............................................... 12
Substitutions, Waivers, and Petitions ..................................................................... 13
Individual Development Plan (IDP) ....................................................................... 13
MD/PhD .................................................................................................................... 14
Progression through the PhD Program ................................................................. 14
Communication ..................................................................................................... 14
Grievances ............................................................................................................. 14
Degree Timeline ..................................................................................................... 15
First Year Advising and Satisfactory Progress ...................................................... 15-16
Research Advisor .................................................................................................. 16
Outside Work While a PhD BIOE Student ............................................................ 16
Satisfactory Progress Beyond the First Year ......................................................... 17
Switching from PhD to MS ...................................................................................... 17
The Qualifying Examination, Committee, Process & Evaluation ........................... 18-31
The Supervisory Committee .................................................................................. 32
The Student Plan .................................................................................................... 32
The General Examination ....................................................................................... 33
Format of the General Exam ................................................................................. 33
Features Assessed in the General Exam ................................................................ 33-34
Process for General Examination ......................................................................... 34-36
Admission to Candidacy for Doctoral Program .................................................... 36
Dissertation ............................................................................................................. 36
Reading Committee .............................................................................................. 36
Dissertation Defense Timeline ................................................................................ 37-38
Dissertation Document Requirements ................................................................... 38
Graduation ............................................................................................................... 38-39
Taking Leave of the Department .......................................................................... 39
PhD Program Timeline and Milestones ................................................................. 39

Section 4: The MS Degree ..................................................................................... 42
BS/MS ..................................................................................................................... 42
MS BIOE ............................................................................................................... 42
General Requirements for the MS Degree ............................................................. 42
Specific Course Requirements for the MS Degree ................................................ 42-44
Switching from MS to PhD ................................................................................... 44
Individual Development Plan (IDP)..........................................................................................44
Timeline and Progression through the MS Degree.................................................................45-47
Master’s Degree Document Requirements..............................................................................47-48
Graduation....................................................................................................................................48
Taking Leave of the Department...............................................................................................48
MS Program Timeline and Milestones.......................................................................................49

Section 5: The PharBE Degree ...............................................................................................50
Pharmaceutical Bioengineering .................................................................................................50
Admission.................................................................................................................................50
Graduate School Requirements.................................................................................................50
Continuous Registration .............................................................................................................50-51
Grades ...........................................................................................................................................51
GNM Credit Limitation .............................................................................................................51
Registration ...............................................................................................................................51
Departmental Requirements........................................................................................................51-52
Petitions........................................................................................................................................52
Grievances .................................................................................................................................52
UW Services ...............................................................................................................................52
Time to Graduation ......................................................................................................................52
Timeline and Progression through the Degree Program...........................................................53
Graduation.......................................................................................................................................53
Taking Leave of the Department...............................................................................................53

Section 6: Graduate Student Resources ....................................................................................54

Appendices

- Appendix A: Expected Background and Prerequisites for the Graduate Program
  - For students admitted Autumn 06 or later
  - For students admitted Autumn 01 – Autumn 05

- Appendix B: PhD Planning Sheet
  - For students admitted Autumn 2012 or later
  - For students admitted Autumn 06 - Autumn 11

- Appendix C: MS Planning Sheet
  - For students admitted Autumn 2012 or later
  - For students admitted Autumn 06 – Autumn 11

- Appendix D: PharBE Planning Sheet (Non-Capstone Option)
- Appendix E: Course Substitution/Waiver Request Form
- Appendix F: Satisfactory Progress/Scholarship
- Appendix G: Supervisory Committee
- Appendix H: Graduate Student Plan
- Appendix I: Request for General Exam
- Appendix J: Request for Final Exam
- Appendix K: Request for Master’s Degree Exam
Foreword

Congratulations! You are entering one of the most satisfying and challenging phases of a scholar’s career. Your undergraduate education has equipped you with solid knowledge, excellent skills, and good work attitudes. You will continue to develop and strengthen each of these in our graduate school programs and throughout your professional life. The crucial tasks for graduate students are finishing formal course work, developing independent learning as a permanent skill and attitude, finding a “research identity”, and defining and taking charge of their careers. Here is our advice on how to approach these important tasks.

Adjusting to the nature of graduate school

We, the faculty, find that many of our incoming students incorrectly believe that graduate school is a continuation of undergraduate education. For most of you, your education to this point has consisted of taking the largest number of courses possible and maintaining the highest possible GPA. Your success in this task has resulted in your admission here. From now on, working for grades in courses is only relevant insofar as it allows you to maintain your progress as a student. Beyond our basic requirements, you should take courses to enhance your ability to perform your chosen research. Your goal in graduate school is to become an independent researcher by learning how to plan, perform, and interpret high quality research, and how to communicate the results in oral and written form. The skill, efficiency, enthusiasm and quality with which you accomplish these tasks will determine the future course of your scientific and technical career.

Develop dual expertise in engineering and biology

Bioengineering is an interdisciplinary field that integrates the principles of physical science and engineering with those of biology and medicine. Because of the extraordinary complexity and redundancy in living systems, biological principles infuse new ideas and concepts into engineering. Conventional engineering notions of design and analysis take on novel meaning when seen from the point of view of biological components and systems. The forefront of bioengineering appreciates and deals with these intellectual issues.

The goal of the graduate program is to ensure that students become engineering and biological professionals by graduation. The educational philosophy of the Department of Bioengineering is simple: students should have depth (provided largely by the research experience) and breadth (provided both by course work and interaction with other faculty and students). While depth is common to all graduate programs, breadth is unusual in that it requires students to venture far beyond the confines of their own chosen research projects. The breadth requirement is primarily implemented by having students develop proficiency, skills, and a broad range of knowledge from a set of core requirements.

Get into the laboratory

The primary importance of laboratory research to graduate education in Bioengineering cannot be overemphasized. In undergraduate education you are taught what is known about a subject, whereas in graduate school you will learn how to discover things that are not yet known and invent things that have not been made. Only through performing research do you learn to create new knowledge and understand previously uncharacterized systems. The process of discovery and innovation inherent in research is an intense learning experience. It is quite difficult to design experiments that give meaningful, unambiguous answers. A typical PhD student spends a large amount of time wrestling with the design and accomplishment of experiments and the analysis of the resultant data. While this handbook focuses on the formal credit and examination requirements for the department, this should not obscure the expectation that you will do your primary learning in and around the laboratory with faculty, post-doctoral fellows, and other students.

Find a research advisor

You must take a proactive approach to the selection of an advisor through laboratory rotations. Working in a lab will bring you into direct contact with the advisor, the other investigators in the lab, and students and technicians. You learn intimately about the work of the lab as well as the way that the principal investigator in the lab guides the work of the staff. Another route to take is to meet with Bioengineering core faculty, adjunct faculty, and some affiliate faculty. You can meet with several faculty members whose work interests you and afterwards choose an advisor and possible project. This second technique provides greater breadth but much less depth of choice. The best technique is to combine the two suggestions above.
Overview of Bioengineering Faculty Appointments

Bioengineering core faculty are UW research and instructional faculty with primary or joint appointments in Bioengineering, such as Professors, Joint Professors, Research Professors, Research Associate Professors, Associate Professors, Research Assistant Professors, Assistant Professors, Senior Lecturers, Lecturers, Professor Emeritus and Emeritus Research Professors in Bioengineering. Our core faculty can be found on the following website: [http://depts.washington.edu/bioe/people/core/core-faculty.html](http://depts.washington.edu/bioe/people/core/core-faculty.html). Please note that Emeritus faculty and Lecturers are not currently accepting graduate students into their labs.

A joint Bioengineering faculty appointment recognizes a faculty member's long-term commitment to, and participation in, two or more UW departments. A faculty member who has the privilege of participation in governance and voting in the primary department may choose to participate or not to participate in governance and voting in the secondary department. A joint appointment may be discontinued only with the concurrence of the faculty member and the appointing departments. Joint Bioengineering faculty can also be found on the core Bioengineering faculty website. Currently, all Bioengineering joint professors with Graduate Faculty Status are accepting graduate students.

Bioengineering adjunct faculty members are UW faculty with primary appointments in other UW departments, schools, or colleges, who participate in department research and/or teaching activities. Bioengineering adjunct faculty can be found on this website: [http://depts.washington.edu/bioe/people/adjunct/adjunct-faculty.html](http://depts.washington.edu/bioe/people/adjunct/adjunct-faculty.html). Bioengineering adjunct faculty with Graduate Faculty Status are accepting graduate students. It is Bioengineering policy that adjunct faculty share half of the rotation costs (tuition, stipend, and benefits) with the Bioengineering department.

Bioengineering Assistant professor (tenure-track), associate professor (tenured), and professor (tenured) duties in the traditional pathway generally include a balance of teaching, scholarship, and service. Duties in the clinician-teacher pathway include a majority of time in clinical care and teaching, and the remaining time in scholarship. Unless indicated otherwise by individual faculty, Bioengineering professors, assistant professors, and associate professors are currently accepting graduate students.

The duties for Bioengineering research assistant professors, research associate professors, and research professors primarily consist of research. Research faculty may participate in instructional programs but are not required to do so. Unless indicated otherwise by individual faculty, Bioengineering research assistant and associate professors are accepting graduate students.

Bioengineering faculty who are appointed to the title of affiliate professor must hold the rank of professor at their home institution or have experience in the field which qualifies them for the professorial rank. In Bioengineering, affiliate faculty can also be faculty and professionals from outside the University of Washington who participate in department research and/or teaching activities. Affiliate Bioengineering faculty can be found on this website: [http://depts.washington.edu/bioe/people/affiliate/affiliate-faculty.html](http://depts.washington.edu/bioe/people/affiliate/affiliate-faculty.html). Please communicate your research interests with the Graduate Academic Counselor prior to contacting affiliate faculty about rotation opportunities.

Additional mentoring resources are online at [https://www.grad.washington.edu/mentoring/](https://www.grad.washington.edu/mentoring/)

The Graduate Faculty Locator provides names and details of faculty with Graduate Faculty Status at [http://www.grad.washington.edu/gradfac/](http://www.grad.washington.edu/gradfac/)
Section 1: Scholarly Conduct and Statement of Ethics

One of the primary missions of the University is the creation and dissemination of knowledge. The University creates an environment in which research flourishes, and it depends on each individual to exercise the highest level of personal integrity in carrying out his/her scientific and scholarly activities. At the same time, the University is prepared, through the adoption of policies and procedures, to address lapses in scientific diligence and to pursue and resolve situations in which scientific and scholarly misconduct arise.

The University, consistent with federal regulations, assumes primary responsibility for investigating and resolving allegations of scientific and scholarly misconduct by its faculty, staff, and students. Federal requirements also pertain.

University rules (University Handbook, Executive Orders, Volume IX, section 61; the Student Conduct Code at: http://www.washington.edu/admin/rules/policies/PO/EO61.html and Faculty Code, Chapter 25, Section 25-51) define scientific and scholarly misconduct to include the following in forms of inappropriate activities:

- Institutional misrepresentation of credentials
- Falsification of data
- Plagiarism
- Abuse of Confidentiality; and
- Deliberate violation of regulations applicable to research

Students and faculty are reminded that these principles apply to all collegial interactions, including preparation for courses, course assignments, course examinations, and others such as term papers, and the Bioengineering Qualifying, General, and Final Examinations.

The procedures for handling questions of misconduct require direct reporting to the Dean. The procedures attempt to safeguard both confidentiality and due process. The possible penalties include reprimand and dismissal of personnel at any level. Of the five types of misconduct listed, plagiarism appears to be the least well understood and is therefore discussed more explicitly in the following section on the Honor Code.

Action item:
Each summer the School of Medicine organizes a series of lectures and small group discussions on the theme of Biomedical Research Integrity. Some training programs (including NIH) require their trainees to attend these sessions. The Department of Bioengineering does not otherwise require attendance but strongly encourages your participation. A clear sign of the value of these discussions is that most students, fellows, and a significant number of our senior faculty attend. Details are online at: http://depts.washington.edu/uwbri/

Honor Code

The growth and development of Bioengineering is based on the scientific search for truth in all things. To foster the quest for truth and to be certain that proper credit is assigned to the work of colleagues, we establish the following Code of Honor:

1. Bioengineering seeks to find the principles that underlie biological phenomena, to alleviate human suffering, and to prevent, diagnose, and treat disease.
2. Bioengineering research is the work of individual researchers and research teams. Each member of a team will receive credit in proportion to his or her contribution to a project.
3. Students will be judged to a great extent on the merits of their research and are responsible to accurately represent their unique contributions to the academic community. The student’s advisor and Supervisory Committee members are responsible for monitoring the student’s work and will be given free access to records of work completed or in progress. The advisor and committee members will meet regularly with the student to review progress. It is strongly recommended that each student document his or her progress daily in a laboratory notebook. Signed, dated, and witnessed pages from such a notebook are often sole criterion for judging scientific priority in academic disputes or for patent rights.
Since the notebook can be considered as a legal document, conscious falsification of data in it is fraud and will not be tolerated. The same standards apply to all published work.

4. Credits for work done previously will be cited formally in homework, papers, proposals, student reports, and those examinations that include formally written reports. Plagiarism, the unacknowledged use of the words, phrasing, or ideas of others, including oral communication, is totally unacceptable. Other people’s writing or remarks must be put in quotation marks and referenced, and other people’s ideas must be clearly cited.

5. Scholarship is an individual effort. Discussion and collaboration do augment scholarship and are encouraged, sometimes even in graded classroom and homework assignments. However, “collaboration” during examinations in the classroom is regarded as cheating, subject to the University’s regulations.

6. Laboratory work should be carefully recorded in dated notebooks. Laboratory work is the responsibility of the researcher who undertakes a particular project. In the case of student research, the student’s advisor and Supervisory Committee members accept responsibility to help the student to check his or her work thoroughly. In that spirit, the student will keep precise records of laboratory work, records which are available to their advisors and Supervisory Committee members for review. The advisor and Supervisory Committee members will meet regularly with the student to review his or her progress.

Each student and faculty member of the Department of Bioengineering accepts this Honor Code in a spirit of collaboration and the quest for the truth.

I have read and understand the Bioengineering Honor Code and agree to uphold these principles. If I disobey these rules, I understand that I will suffer consequences, which may include dismissal from the Department.

I have read and understand the Bioengineering Honor Code and agree to uphold these principles. If I disobey these rules, I understand that I will suffer consequences, which may include dismissal from the Department.

______________________________  ________________________________  
Name (Print)  

______________________________  
Name (Sign)

______________________________  
Date
Section 2:
Research Areas in the Department of Bioengineering

Research in the Department of Bioengineering is organized into five focus areas. These areas maintain thematic coherence and help students understand the research that goes on in the laboratories of our diverse faculty. The focus areas are listed below. The departmental website contains more detailed information about each focus area, including subspecialties, current research interests, and sample curricula. What should be clear from those descriptions is that study within the Department can span more than one focus area. Indeed, we encourage students to delve into more than a single area of study.

At the end of this section you will also find an introduction to the dual Degree in Bioengineering and Nanotechnology and two special certificate options, the Program on Technology Commercialization (PTC) and the Technology Entrepreneurship Certificate (TEC).

The five focus areas are:

1. Biomaterials and Regenerative Medicine
2. Instrumentation, Imaging and Image-guided Therapy
3. Molecular and Cellular Biology
4. Systems and Quantitative Biology
5. Technology for Expanding Access to Healthcare

Special opportunities for study

Dual degree in Bioengineering and Nanotechnology

The Center for Nanotechnology has launched the nation’s first PhD program in nanotechnology, an undertaking designed to prepare students as leaders in a world in which scientific discovery and exploitation of nanoscale phenomena and the engineering of the very small will carry the next industrial revolution. The program puts in place a PhD nanotechnology track tied closely to other science and engineering disciplines. The effort is funded by the National Science Foundation’s Integrative Graduate Education and Research Traineeship program. More information is available at http://www.moles.washington.edu/academics/nanotech/

Program on Technology Commercialization (PTC)

The Program on Technology Commercialization (PTC) is a three-course sequence designed to teach students the skills necessary to take a new technology or invention and protect it, analyze its potential, sell the idea to prospective licensees, senior management, or investors, and get the product to market. Students will learn business, legal, and other skills useful to their future careers in academia or industry.

Note that it is strongly recommended to take the BIOEN 504,505,506 Technology Commercialization sequence in order, as each course is a prerequisite to its successor. More information is available at http://www.uweb.engr.washington.edu/ptc

Technology Entrepreneurship Certificate (TEC)

A key design element of the TEC program is the inclusion of both MBA and other UW graduate level students in classroom and project-oriented settings. The program goal is to train science and engineering graduate students for careers in entrepreneurial settings or for entrepreneurial positions in existing industry settings.
To earn the certificate, students must apply to the program (there are no specific application deadlines at this time). To apply students must complete an application form (online), submit a one-page statement of interest essay (see application form for details), and attach a resume. TEC students need 18 credits of coursework, which will be spread over two years (at a minimum). More information is available at http://foster.uw.edu/centers/buerk-ctr-entrepreneurship/entrepreneurship-certificate/

Recommended Activities
- High-tech Entrepreneurship Speaker Series
- Entrepreneurship and Innovation Club Active Member
- Participate in the Business Plan Competition

Additional Opportunities:

Molecular Medicine certificate:
http://depts.washington.edu/molmed/index.html

Graduate Certificate in Global Health:
https://sph.washington.edu/prospective/programDetail.asp?progID=gcert-gh

Center for Advanced Study and Research on Intellectual Property:
http://www.law.washington.edu/casrip/
Section 3: The PhD Program

The doctoral degree is the highest degree that can be awarded to a student. Attainment of this degree demonstrates high achievement in the field of Bioengineering, including excellence and intellectual leadership as an independent scientific researcher. A student seeking the PhD in our department undertakes a rigorous set of courses (see below) and a focused research project. Three major milestones punctuate that work: the Qualifying Examination, the General Examination, and the Final Exam (Dissertation Defense). For students entering Autumn 2006 or later, a teaching experience is required.

The goal of our graduate program is to prepare bioengineers for careers in industry and the academy. Our objectives are:

1. To provide bioengineers with an in-depth understanding of mathematics, engineering principles, physics, chemistry, and molecular, cellular, and organ system physiology and biology.
2. To train bioengineers to apply basic sciences to medical and biological problems, using engineering principles.
3. To train bioengineers to recognize and provide engineering solutions to clinical problems.
4. To train students to do bioengineering research.
5. To train students to teach bioengineering at the graduate and undergraduate level.
6. To train students to apply bioengineering research to commercially viable problems.

Not all students need to be trained in all areas.

Expected Prerequisites
Every graduate student is expected to have significant knowledge of the following topics prior to entering the graduate program:

- Algebra, linear algebra, trigonometry
- Ordinary differential equations
- Signal analysis
- Probability theory and statistics
- Programming
- Electrical engineering and physics
- Chemistry (organic, inorganic, biochemistry)
- Material science
- Rate processes and mathematics
- Cellular biology

Well qualified students may be admitted to the graduate program missing some background knowledge, however, they will be responsible for learning these topics prior to program entrance.

General Course Requirements for the PhD Degree
Refer to the Graduate School web site at [http://www.grad.washington.edu/students/doctoral/index.shtml](http://www.grad.washington.edu/students/doctoral/index.shtml)

Please note that you must earn a 2.7 or higher in all required courses and maintain a 3.0 overall GPA. Grades below 2.7 count toward your cumulative GPA even though the credits cannot be counted toward your
degree. All required courses must be taken for a numerical grade unless otherwise determined by the department. All requirements for the PhD must be completed within 10 years.

Specific Course Requirements for the PhD Degree

The following requirements apply to students who entered Autumn 2012 and later:
To keep track of your coursework, please see the PhD planning sheet, Appendix B. The degree requires 33 course credits. Waivers and substitutions are not encouraged, though students who enter with a related Master’s degree may submit a request to transfer up to 6 of their previous Master’s credits toward the “7 additional electives credits” within the 25 elective credits requirement (see Appendix E).

- BIOEN 530: Literature Analysis (2 credits, CR/NC)
- BIOEN 531: Grant Writing (2 credits)
- BIOEN 532: Professional Development (1 credit, CR/NC)
- A minimum of 2.0 credits of Biostatistics: BIOSTAT 517, 524; STAT 502, 504, 512, BIOEN 599 (Bioengineering statistics), or UCONJ 510
- 25 credits of 400 or 500-level, BIOEN theme-related and research-related electives. 9 credits must have BIOEN prefix. Electives must be PI-approved.
  - 18 graded 400 or 500-level credits must be taken within 4 of the 5 BIOEN themes.
    o Of the 4 themes, 9 credits must be “advanced credit” taken in one of the themes.
    o In the three remaining themes, students must complete 9 credits (advanced or basic). Students must complete a minimum of 3 credits in each of the three remaining themes.
  - 7 additional electives credits are required at the 400 or 500-level, but do not have to be research related. 3 of these credits can be CR/NC.

Additionally, students will complete 1-3 laboratory rotations and 1 quarter Teaching Assistantship. The laboratory rotations occur during the first year of the PhD degree. The Teaching Assistantship can be completed at any point during the PhD degree but is encouraged to be undertaken after the second year.

The following requirements apply to students who entered Autumn 2006 –Autumn 2011:
To keep track of your coursework, please see the PhD Planning Sheet, Appendix B. The degree requires 33 course credits. Waivers and substitutions are not encouraged, though students who enter with a related Master’s degree may submit a request to transfer up to 6 of their previous Master’s credits toward the 16 elective credits requirement (see Appendix E).

- BIOEN 501: Molecular Bioengineering (4 credits)
- BIOEN 502: Cellular Bioengineering (4 credits)
- BIOEN 503: Systems Bioengineering (4 credits)
- BIOEN 510: Introduction to Bioengineering (1 credit)
- A minimum of 2.0 credits of Biostatistics: BIOSTAT 517, 524; STAT 502, 504, 512, BIOEN 599 (Bioengineering statistics), or UCONJ 510
- 16 credits of 400 or 500-level, research-related electives selected in consultation with the faculty advisor. (up to 3 credits can be CR/NC or 1 CR each).

Additionally, students will complete 1-3 laboratory rotations and 1 quarter Teaching Assistantship. The laboratory rotations occur during the first year of the PhD degree. The Teaching Assistantship can be completed at any point during the PhD degree but is encouraged to be undertaken after the second year.
**Substitutions, Waivers & Petitions**

Submit a separate form for each waiver, substitution, or petition. Waivers, substitutions, and petitions should be submitted to the Graduate Academic Counselor as soon as possible. Waivers, substitutions, and petitions are subject to the rulings of the Student Affairs Committee (SAC) and the GPC and are not guaranteed.

Request a **waiver** when you wish to be exempt from a core requirement on the basis of previous training or experience (see Appendix E for the waiver/substitution form). For example, if you come into our graduate program after taking a series of biostatistics courses, you might request to waive the biostatistics requirement in the core curriculum. Note that the approval of waivers is not guaranteed and waivers do not reduce the total number of required credits for the degree; they simply free credits for electives.

Courses taken in a prior MS degree may introduce more flexibility into the Bioengineering program. If the prior degree covers some of our PhD requirements, the student can request to take other courses, either to gain depth in the chosen area or to explore another field. The student and the faculty advisor should plan such variations from the standard curriculum.

Request a **substitution** (see Appendix E for the waiver/substitution form) when you seek approval to substitute another course for a core requirement. For example, if you are a student with a strong interest in zoology, you might request to substitute the Zoology Department’s course in physiology for Bioengineering’s core physiology requirement. Such requests should present a compelling educational reason for the substitution and must have the faculty advisor’s approval.

Under some conditions the total number of credits required for the PhD may be reduced; normally, however, students will be expected to explore and further their research capabilities via alternative or substitute course work.

In addition to the faculty advisor’s approval, instructor review and approval is preferred for UW course waiver and substitution requests. Additionally, instructor review and signature approval is required for waivers or substitutions involving Biotransport and/or Medical Measurements and/or Bioengineering Physiology I and/or II.

Any waivers or substitutions consisting solely of courses below the senior/400-level will not be reviewed by the Student Affairs Committee.

Request a **petition** only after receiving instruction and approval from the Graduate Academic Counselor. Extenuating circumstances in which a student may petition may include (but are not limited to) requesting part-time Graduate Student Status, requesting a reduction in the total number of credits required for the PhD, requesting on-leave status, or to request individual review relating to any Graduate or Department milestones. A petition will typically be written in letter format (no more than 1 and ½ pages single spaced typed, addressed to the Student Affairs Committee) and will provide necessary background regarding the request, and the student’s anticipated course of action moving forward should the petition be approved.

NOTE: PI review and written approval is preferred for petitions involving on-leave or where most departmental milestones are concerned.

**Individual Development Plan (IDP)**

All MS/PhD students are required to submit an IDP once per year, by June 30th. The purpose of an IDP is to prepare you for your future career. It is important that you think carefully about your individual career goals and the skills that you need to be successful in that career. Your IDP should be considered a living document that will evolve over time as you move through your training. You will be expected to update it in consultation with your mentor before you establish your Supervisory Committee and prior to each annual committee meeting once your Supervisory Committee has been established. You may also wish to update it at or after your Supervisory Committee meeting or after quarterly or semi-annual meetings with your mentor(s).
MD/PhD

The Department of Bioengineering participates in the MD/PhD program, administered by the Medical Scientist Training Program (MSTP). Students who wish to follow this path must complete a combined application through MSTP.

MSTP students start their PhD work with a lab rotation during the summer immediately prior to starting medical school. In September they enter medical school with their class. During the second summer they do another lab rotation (PhD credit), then proceed to the second year of medical school. At the end of the second year they pass Part 1 of the National Board Exams. That summer they can either do a third lab rotation or enter the graduate program. After completing their PhD, they return to the final 2 years of medical school (clinical rotations).

The following rules and principles apply:

1. Neither the MD nor PhD requirements are reduced from the normal requirements.

2. Any reduction in total credits required would be made by petition to and reviewed by the Student Affairs and/or Curriculum Committee.

3. Credits for the normal MD program cannot be used as credits for the PhD program, in accordance with the University’s rules against double-counting credits. However, while completing the MD portion of the program, a student may be able to fit in other graduate credits, for example, thesis research.

4. The PhD component of the combined program can be accomplished in three years, for a total program of seven years. Early definition of the thesis program is strongly encouraged. Mechanisms include using the summer before starting Medical School and the summers after the first and second years for research. The Medical School requires using these three summers for the laboratory program.

5. The Qualifying Examination should be taken as early as possible during the program, and not later than 2 years after entering the combined program.

Progression through the PhD Program

Students in the Department of Bioengineering are responsible for planning programs of study and research that lead to timely degree completion. Students are assisted in the planning process by faculty advisors, Supervisory Committees, the Graduate Program Coordinator, the Graduate Academic Counselor, and the Student Affairs Committee. Degree planning is done at three times: when the student is admitted, when a Supervisory Committee is formed, and when the Student Affairs Committee approves a Student Plan. In addition, the student’s Supervisory Committee must conduct annual reviews of student progress.

Communication

The Department is committed to the success of each student. The Graduate Academic Counselor is available to assist students with department policies and degree requirements. The Graduate Academic Counselor is also available to help with problems (personal, academic, research, and/or professional) that interfere with degree and/or research progress, as are the Graduate Program Coordinator, Vice-Chair, and your faculty advisor. When you encounter a problem, please contact us without delay.

Grievances

Students are encouraged to speak first with the Graduate Academic Counselor. Together the student and Counselor will work to find a positive solution. If the student feels a suitable solution has not been found, the student may submit a petition to the Student Affairs Committee. In all cases the student has the option of following the Graduate School’s grievance guidelines: and http://www.grad.washington.edu/policies/memoranda/memo33.shtml
Degree Timeline and Significant Program Milestones
Ordinarily a student progressing well and on schedule will:

- **1st year**: include one to three lab rotations. (Please discuss with your rotation faculty advisor at the beginning of the quarter whether s/he would prefer you to complete a one-page, faculty-reviewed document of work accomplished at the end of each rotation). Select a permanent thesis advisor in Winter quarter but no later than the end of Spring Quarter.

- **2nd year**: pass the Qualifying Exam.

- **3rd year**: By the end of Autumn Quarter of the third year, establish your Supervisory Committee (see Appendix G). By the end of Winter Quarter of your third year, fill out a Graduate Student Plan (see Appendices H and B). Pass the General Exam.

- **4th (and subsequent) year(s)**: make an annual progress report to the Supervisory Committee and receive feedback from the committee on your report.

- **5th year**: defend the dissertation.

*The sooner you begin research, the sooner you are likely to obtain your PhD degree.* It is a Graduate School policy that all requirements for the PhD be completed within 10 years.

First Year Advising and Satisfactory Progress
All entering students are assigned a first year faculty mentor. The student should meet with the first year mentor prior to the beginning of Autumn, Winter, and Spring quarters. Students should choose a permanent research advisor in Winter quarter, but no later than the end of Spring Quarter. The first year mentor does not have to be the same as the permanent faculty advisor.

Prior to Autumn quarter
Before Autumn of the first year, the entering student and first year faculty mentor should discuss:

- **Expected Background Prerequisite Knowledge**
  Are any expected background topics missing from the student's record? If so, how will the student get up to speed?

- **Autumn Quarter Courses**
  - BIOEN 530 - a 2 CR, CR/NC Literature Analysis course is required.
  - Register for research. Students should enroll in BIOEN 598 (rotation) or BIOEN 600 (permanent lab placement only). Both research courses require a faculty code in order to enroll. Course credits are variable.

  Faculty codes are listed in the PhD/MS Commonview available via Catalyst: www.catalyst.uw.edu. Students will need their UWNETID and password in order to access this site. The Graduate Academic Counselor provides access to this site (typically once the offer of admission has been accepted).
  - The remainder of the schedule should consist of one or more approved elective courses or other degree-related courses.
• To **plan ahead for subsequent quarters**, please consult the department’s Master Teaching Schedule (MTS). This schedule shows which courses will be taught each quarter for the next two academic years. The MTS is available at [http://depts.washington.edu/bioe/resources/teaching-schedule/](http://depts.washington.edu/bioe/resources/teaching-schedule/).

• **The Student’s Research Interests**
  First year mentors should help students clarify their research interests and should suggest faculty labs for rotations and identify advanced students who could serve as resources. In combination with faculty interactions that will take place in BIOEN 530, these advising conversations should enable students to choose a research lab within a quarter or two. Students should also use other resources for exploring research, including the departmental website, the “bioegrad” email list; lab rotations; interviews with faculty; and the Departmental Seminar (BIOEN 509) in Winter and Spring quarters.

### Satisfactory Progress in the First Year
To make satisfactory progress in the first year, students must:

1. Discuss their educational plans with the first-year mentor before Autumn, Winter, and Spring quarters;
2. Secure a research supervisor from the core or adjunct faculty lists, or
3. Register for at least 10 credits per quarter (Autumn, Winter, Spring) and 2 credits of research per Summer quarter to maintain eligibility for any Research Assistantship or Teaching Assistantship;
4. Register for 400 or 500-level courses that apply to the Bioengineering degree (exceptions should have the advisor’s and Student Affairs Committee’s concurrence);
5. Make progress on required core courses;
6. Complete courses with a minimum 2.7 GPA per course, and keep the cumulative GPA above 3.0.

**NOTE:** The first major milestone for PhD students is the Qualifying Exam, to be taken before the end of the second year. Please plan ahead by reading the section on the Qualifying Exam in this handbook.

### Research Advisor
When a student places in a specific laboratory, the research advisor of the laboratory assumes primary responsibility for future direction of the student, will chair the student’s Supervisory Committee, and thus, will ultimately direct the student’s dissertation. The research advisor must have Graduate Faculty Status: [http://www.grad.washington.edu/policies/memoranda/memo12.shtml](http://www.grad.washington.edu/policies/memoranda/memo12.shtml). As soon as a permanent research advisor is identified, the student notifies the Graduate Academic Counselor and informs the first year advisor. Students may choose a research advisor from the core or adjunct faculty lists: [http://depts.washington.edu/bioe/faculty-staff/faculty-directory/](http://depts.washington.edu/bioe/faculty-staff/faculty-directory/). For information regarding affiliate faculty, consult the Graduate Academic Counselor. Exceptions must be petitioned to the Student Affairs Committee.

**NOTE:** If a student chooses an adjunct or department-approved affiliate faculty advisor, the Supervisory Committee must be established concurrently and meet within three months.

### Outside Work while a PhD BIOE Student
Before pursuing outside work while a PhD BIOE student, it is critical that you first have a conversation with your PI and the Graduate Academic Counselor. Depending on your funding source, you may need to obtain approval to pursue outside work with the Graduate School, your PI, or another source.

- NSF Fellows must have approval from the Graduate School
- Students on a training grant must have approval from the training grant PI
- In cases where intellectual property is of concern, CoMotion may need to approve
Satisfactory Progress beyond the First Year
To maintain satisfactory progress after the first year, students must:

1. Successfully complete the Qualifying Exam by the end of Spring quarter of the 2nd year (if a reexamination is required, the qualifying exam must be completed by December of the 3rd year);

2. Establish the Supervisory Committee (Appendix G) no later than the end of Autumn Quarter of the third year in the program, and no less than 4 months before the General Exam;

3. Register for at least 10 credits per quarter to maintain eligibility for any Research Assistantship, Teaching Assistantship, or Fellowship (Autumn, Winter, Spring) and 2 credits in Summer Quarter;

4. Register for 400 or 500-level courses that apply to the Bioengineering degree (exceptions should have the advisor’s and Student Affairs Committee’s concurrence);

5. Have a core, adjunct or department-approved affiliate research advisor at all times (for questions about adjunct or affiliate faculty, please see the BIOE website and talk with the Graduate Academic Counselor);

6. Fill out and turn in Appendix B and Appendix H (degree planning sheets) to the Graduate Academic Counselor no later than the end of Winter Quarter in the third year of the program;

7. Complete the General Exam by the end of the 3rd year;

8. Complete courses with a minimum 2.7 GPA, and keep the cumulative GPA above 3.0;

9. Meet with the Supervisory Committee as a whole at least once per year.

*If you do not maintain satisfactory progress, you may be asked to leave the department.*

It is recommended, though not mandatory, that you:

- Complete the Final Exam by the end of the 5th year.

Switching from PhD to MS
Any student who wishes to transfer from a doctoral to a master’s degree program must submit a formal request (petition) to the Student Affairs Committee, by way of the Graduate Academic Counselor, with a written note (or e-mail) from their advisor stating approval of this action. If the petition is approved, the student will follow the requirements for the MS (see Section 4), including submitting a Graduate Student Plan (Appendices H and C) and revised Supervisory Committee (Appendix G) for approval.
The Qualifying Examination
The Qualifying Examination is the first test of a Bioengineering student’s potential for a successful career in original bioengineering research at the doctoral level. The Qualifying Exam is completed over a 3-week period and is designed to evaluate a student’s scientific knowledge, research, and presentation skills, creativity and time management. The Exam must be taken before the end of the second year (Spring Quarter). It is recommended that students complete the exam prior to finals week in Spring Quarter. If a student is asked to retake the Qualifying Exam, the reexamination must be completed by December of the third year. Failure to complete the Qualifying Exam on time will result in academic probation. (See Appendix F for a discussion of probation.) There are NO exemptions from the Qualifying Exam – students cannot waive this requirement. Students are asked to plan ahead as coordinating faculty schedules may be difficult. On occasion, unavailability of the faculty may require a delay of examination; in this case, a student may submit a petition to the Graduate Academic Counselor, to be reviewed by the Student Affairs Committee, for a delay of no more than one quarter.

During this exam, a subset of the faculty, including at least one BioE core faculty member serving as the Chair (not the student’s PI), assesses the student’s research proficiency and innovation, progress towards mastery of their chosen field, general knowledge, ability to do focused work, oral and written communication skills, common sense, and potential as a researcher. The exam determines whether the student should continue in the doctoral program. Students must pass the Qualifying Examination to remain in the PhD program.

Preamble

The Doctorate degree has a history extending back more than 900 years and is deeply rooted in scholarship and great intellectual and technological advancements that have profoundly impacted civilization. Your Ph.D. in Bioengineering will serve as your admission into this informal association devoted to knowledge preservation and intellectual advancement, but with it carries the responsibility to contribute intellectually, creatively, and ethically to society.

Over the centuries since the concept of the Ph.D. first evolved, much has been learned about how to educate the future generations of intellectual leaders. The Qualifying Examination represents an important milestone in your educational journey. It is an instructional tool used by the Department of Bioengineering and its faculty to ensure that those who will ultimately receive the Ph.D. degree are equipped and capable of making ongoing and lasting contributions to the body of knowledge in our field. With this educational goal in mind, the qualifying exam seeks to determine whether doctoral candidates are now capable of demonstrating:

• an expert command of the technical literature surrounding their area of research

• familiarity with the scope of the field of bioengineering and its technical literature

• creativity

• the ability to formulate relevant and significant research questions

• the ability to organize and conduct research

• critical abilities applied to assessing your own research and that of others

• oral and written communications skills

• appreciation of the ethical responsibilities of an engineer to society

The written and oral components of the University of Washington’s Department of Bioengineering Qualifying Examination have been structured to permit the faculty to assess the strengths and weaknesses of candidates aspiring to the Bioengineering Ph.D., and to provide students with constructive feedback as they continue to mature in each of these areas.
Qualifying Exam Guidelines (Autumn 2015 and Later)

- The student may consult with all sources, including other students and faculty, except the committee members, and may review previous examinations and grant applications if they are available.
- Do not schedule exams during the final two weeks of fall quarter. This will allow adequate time for a student to resubmit a written exam (see below) without conflicts due to the December holiday break.
- Students are encouraged not to schedule a vacation immediately after the exam, in case a resubmission is required.
- To avoid conflict with faculty meetings, exams should not be scheduled on the morning of the 2nd Tuesday of each month.
- If the student becomes ill: If a student becomes seriously ill, the student should immediately contact the Graduate Academic Counselor and the Qualifying Exam Committee Chair. A doctor's note is then presented to the Graduate Academic Counselor. The note need not disclose the illness, only the amount of recovery time necessary. The note will be used as the basis for further action to be decided by the Committee Chair. In case of other emergencies, the student should immediately contact the Graduate Academic Counselor and the Committee Chair.
- If a committee member cannot continue his or her duties: If a committee member cannot continue, the Graduate Academic Counselor and the Committee Chair should be notified as soon as possible. A new committee member must be selected in consultation with the Committee Chair and the departmental Vice Chair. In the event that a committee member should unexpectedly not attend an exam, the Committee Chair may ask the student to reschedule or the Committee Chair may momentarily adjourn the exam until a suitable replacement faculty member is found (a minimum of one Core BioE Faculty member must be in attendance for the exam to proceed). If none can be found, the student must reschedule the exam.

Qualifying Exam Timeline & Process Overview

- No later than January of the second year of the program, the student should be assembling the Qualifying Exam Committee
- By the end of February, or at minimum 6 weeks before the date of the exam, the student will email the committee and arrange a date/time/location for the oral examination. The student should immediately inform the Graduate Academic Counselor of the date/time/location of the exam via e-mail.
  The student schedules an exam room on the UW main campus. Room scheduling details are available on by logging into MyBIOE: https://my.bioeng.washington.edu.
- 3 weeks before the exam date, the student is given “research release” by the Committee Chair. The research release is only official when the committee chair sends an e-mail (cc’ing the Graduate Academic Counselor, Committee Members, and Student’s PI) that states that the research release has started and reminds all involved of the exam date, day, time and location.
- Students are allowed to develop the topic for their original research proposal prior to the three week qualifying exam. However, they are expected to meet their quarterly RA obligations outside of the three week exam period, leaving them free to focus exclusively on the qualifying examination during the three designated weeks of the exam.
- One week prior to the oral examination, the student must submit copies of their written exam (including both the research progress report and original research proposal) to their committee members. The student must ask each committee member if an electronic or paper copy is desired (or both).
- The student has one week to prepare his/her oral presentation for the exam
- No later than the day of the exam, the student prints the exam evaluation forms and summary page from the administrative website and brings them to the exam.

Establishing a Qualifying Exam Committee

This examination is administered by a Qualifying Examination Committee consisting of four faculty:

- The student’s Research Advisor (cannot be committee chair, is a non-voting committee member)
- The Committee Chair (must be Bioengineering core faculty)
- Two members of the UW faculty (may include core, adjunct, or affiliate faculty from any department, affiliate faculty from industry are welcome)

The process for assembling the committee:

1) The student, consulting with his/her Research Advisor, compiles a list of candidates. Please note, the Chair of the committee must be a member of the Core Bioengineering Faculty
Qualifying Exam Format
The Examination has both written and oral components.

WRITTEN EXAMINATION
The written examination consists of two written documents:

(1) **Research Report** - A brief written summary of the student’s research progress achieved to date. The report should include a rationale for the research, a brief description of the methodology, results, discussion, and conclusions. In addition, the report should include a brief discussion of future research plans (one-half page maximum). While the student’s advisor and collaborators should be consulted to discuss research plans, the student alone must prepare the written report. No one (faculty, students, or staff) may review or edit the research report prior to submission to the committee. The research report should abide by the following formatting restrictions:

- The narrative may not exceed 4 single-spaced pages, including figures
  - The document should be single spaced, Arial font, 11pt minimum, 0.5” margins
- Additional pages may be used for references cited
- Appendices may be used sparingly to include lengthy calculations, data, or statements of help received

(2) **Original Research Proposal** – An original research proposal will be written in response to the NIH Exploratory / Developmental Research Grant Award (R21) call for proposals (http://grants.nih.gov/grants/guide/pa-files/PA-11-261.html). The R21 mechanism specifically seeks to support early stage project development. As described by the NIH parent announcement:

The evolution and vitality of the biomedical sciences require a constant infusion of new ideas, techniques, and points of view. These may differ substantially from current thinking or practice and may not yet be supported by substantial preliminary data. By using the R21 mechanism, the NIH seeks to foster the introduction of novel scientific ideas, model systems, tools, agents, targets, and technologies that have the potential to substantially advance biomedical research. The R21 mechanism is intended to encourage new exploratory and developmental research projects. For example, such projects could assess the feasibility of a novel area of investigation or a new experimental system that has the potential to enhance health-related research. Another example could include the unique and innovative use of an existing methodology to explore a new scientific area. These studies may involve considerable risk but may lead to a breakthrough in a particular area, or to the development of novel techniques,
agents, methodologies, models, or applications that could have a major impact on a field of biomedical, behavioral, or clinical research.

The written exam content will include the following components:

- **Specific Aims – 1 page**
- **Research Strategy (including all figures) – 6 pages**
- **References – no page limit**
- **NIH Biosketch (student only)**

While the qualifying exam does not include all elements of a full NIH R21 submission, instructions in the NIH SF424 (R&R) Application Guide must be followed for the required documents (http://grants.nih.gov/grants/funding/424/) Students are not required to prepare a facilities or equipment statement. It is assumed that the student will have access to laboratory equipment and materials that could reasonably be expected to be available in a functional research laboratory in the appropriate field of study.

The topic of the original research proposal must be selected by the student without the assistance of their research advisor or their Qualifying Examination Committee, and be broadly related to the field of Bioengineering. The purpose of the Qualifying Examination research proposal is to evaluate the student’s creativity and ability to develop innovative ideas. To ensure the student’s independence, the proposed topic cannot draw from ideas in proposals that the advisor or other members of the research group may have previously shared with the student. The original research proposal must not be the same as the student’s current or future research, as described in their Qualifying Exam Research Report, and the proposal should be written specifically for the Qualifying Exam. A research proposal written for a prior class or fellowship cannot be reused or revised for the purpose of the R21 component of the Qualifying Exam. NOTE: The successful completion of the qualifying exam does not constitute an obligation on the part of the advisor to support the proposed research activities.

**ORAL EXAMINATION**

The student will have one week after the written examination is submitted to prepare his/her oral research proposal. The oral portion of the examination tests the student’s oral communication skills, the depth of the student’s knowledge of their research, the topic of their research proposal, as well as the breadth of his or her knowledge of Bioengineering as a discipline. The oral examination has three parts:

1. **Oral Presentation** - The student has approximately fifty to sixty minutes to present his or her research progress to date and original research proposal (20-30 minutes each). By default, the oral presentation is open to the public. BioE faculty, students and staff are encouraged to attend. If the student or advisor feels that the exam should be held in a closed-door session, to protect sensitive IP from disclosure, the Committee Chair should be consulted and must concur. Due to the importance of the public presentation to the Qualifying Exam, we encourage students to hold the exam in an open-door session unless absolutely necessary. During the oral public presentation, questions from the Committee will be limited to points of clarification.

2. **Questions from Audience** - The oral presentation is followed by an open question-and-answer period, after which the audience is dismissed.

3. **Questioning by the Committee** – Once the audience has been excused, the Qualifying Exam Committee may then question the student broadly. The Committee is expected to question the student’s understanding of the fundamentals related to their research and the original research proposal. The length of the closed portion of the oral exam is not specified, but is generally 1 – 1.5 hours.

**Evaluation of the Qualifying Exam**

The student prints the exam evaluation forms from the administrative website prior to the exam from Qual Resources section of the PhD/MS Commonview (accessible via www.catalyst.uw.edu) and brings them to the Chair at the exam.

At the close of the oral exam questioning, the Chair dismisses the student and the Committee grades the examination.
The exam will be evaluated in six specific areas:
1. Research aptitude, as demonstrated in the written research progress report and oral presentation
2. Scientific merit of the original research proposal
3. General knowledge and reasoning ability as demonstrated in written document and the question/answer session of the oral exam
4. Innovation of the original research proposal
5. Oral presentation skills (organization, clarity, poise, appropriate use of time, quality of audio-visual aids, etc.)
6. Written presentation skills (layout, organization, style, clarity, grammar, spelling, etc.)

Each area will be scored as Excellent, Good, Fair, or Poor.
- **Excellent**: reserved for a truly outstanding performance
- **Good**: clear competence in the given area
- **Fair**: some weaknesses worthy of corrective action were noted
- **Poor**: unacceptable performance for which no simple corrective action is deemed likely to raise the performance to the “good” category

The voting members of the Qualifying Exam Committee will record their 6 scores of the performance of the candidate separately, qualitatively discuss the student’s performance, and then pool their final scores to produce one set of 6 scores on which the majority of the committee members agrees. No intermediate scores will be permitted. In cases in which the Committee’s voting members cannot reach unanimity on a score after the discussion period, the Chair will record an intermediate score, or the higher score, as appropriate. At the close of this portion of the exam all grades are considered final. It is suggested that the Research Advisor serve as the session reporter to record comments and recommendations during the exam session.

Based on the exam committee’s final scores, one of the following actions is required:
1. **Pass**: “Good” or “Excellent” performance in all areas.

2. **Conditional pass**: The committee has identified some specific weaknesses that need to be addressed. The committee may require specific actions to remedy these weaknesses. The assignment of a conditional pass constitutes a contract between the student and Department to fulfill the conditions. The recommendations will be noted by the Committee Chair in the Qualifying Exam report and summary letter. It is the student taking the Exam and the Chair's responsibility to ensure that the Graduate Academic Counselor receives the Qualifying Exam report within 48 hours of the completion of the original Qualifying Exam. Any conditions set must be completed satisfactorily before the student will be permitted to take the General Examination.

3. **Resubmission**: This is a specific case of conditional pass invoked when the written proposal has merit but contains fundamental weaknesses, which were not adequately addressed in the subsequent oral presentation. Additional work is needed before the written proposal is acceptable. The student will receive a critique of the written proposal and the Qualifying Exam report within 48 hours of the completion of the original exam date, and will have three weeks to revise and resubmit the proposal to the exam committee. By the end of the first week, it is recommended that the committee communicate clear expectations and answer any clarification questions. At the committee's discretion, a follow-up oral presentation may be required at the end of the three-week period. This follow-up oral presentation will not be open to the general public. The Committee must then grade the resubmitted exam as either a Pass, Conditional pass, or Fail within one week of receipt (no further revision/resubmission will be permitted), and notify the Graduate Academic Counselor. It should be noted that a resubmission does not guarantee a subsequent pass or conditional pass. If the resubmission does not make substantial improvements to the identified areas of weakness in the original exam, the student will receive a failing grade for the exam.

4. **Fail**: The committee identifies significant deficiencies that cannot be addressed by a conditional pass or resubmission. In the event of a fail, the committee can recommend that the student be given an opportunity to repeat the examination one time, no more than 6 months after the first attempt. The student may propose a new Examination Committee for the second attempt.
If the student does not re-take the exam within 6 months after the first examination date, he or she is automatically terminated from the program. If a student fails the Qualifying Examination on the second attempt, or the student’s committee does not give the student the opportunity to repeat the exam, the full faculty decides, within 1 month of the outcome of the exam, whether the student will be offered a transfer to the master’s degree or be asked to leave the Bioengineering program. The student will be given notice and separated from the program as per the guidelines provided the Academic Student Employee Union and by the Graduate School regarding academic progress.

5. If the examination is being taken for the second time, the committee has only options 1, 2, and 4.

After the Qualifying Exam

CHAIR’S/COMMITTEE MEMBERS’ RESPONSIBILITIES

- Immediately after the exam, the Chair informs the student orally of the Committee’s decision.
  - All members of the Qualifying Exam Committee will then make themselves available for 1-hour discussions regarding the examination with the student at the student’s discretion within one week of the exam, but preferably within two days.
- Within one week, the Chair will write the student a letter summarizing the committee’s findings.
- No later than one month after the exam, the Chair will also send the Graduate Academic Counselor copies of the letter and the written evaluations for the student’s file.

STUDENT’S RESPONSIBILITIES

- Within one quarter of passing the Qualifying Exam, the student will request to schedule a meeting with the Senior Academic Counselor to review the Exam documents and talk about “next steps.”

Qualifying Exam Guidelines (Autumn 2012 – Summer 2015)

- The student may consult with all sources, including other students and faculty, except the committee members, and may review previous examinations and grant applications if they are available.
- Do not schedule exams during the final two weeks of fall quarter. This will allow adequate time for a student to resubmit a written exam (see below) without conflicts due to the December holiday break.
- Students are encouraged not to schedule a vacation immediately after the exam, in case a resubmission is required.
- To avoid conflict with faculty meetings, exams should not be scheduled on the morning of the 2nd Tuesday of each month.
- If the student becomes ill: If a student becomes seriously ill, the student should immediately contact the Senior Academic Counselor and the Qualifying Exam Committee Chair. A doctor’s note is then presented to the Senior Academic Counselor. The note need not disclose the illness, only the amount of recovery time necessary. The note will be used as the basis for further action to be decided by the Committee Chair. In case of other emergencies, the student should immediately contact the Senior Academic Counselor and the Committee Chair.
- If a committee member cannot continue his or her duties: If a committee member cannot continue, the Senior Academic Counselor and the Committee Chair should be notified as soon as possible. A new committee member must be selected in consultation with the Committee Chair and the departmental Vice Chair. In the event that a committee member should unexpectedly not attend an exam, the Committee Chair may ask the student to reschedule or the Committee Chair may momentarily adjourn the exam until a suitable replacement faculty member is found (a minimum of one Core Bio Faculty member must be in attendance for the exam to proceed). If none can be found, the student must reschedule the exam.


- No later than January of the second year of the program, the student should be assembling the Qualifying Exam Committee
- By the end of February, or at minimum 6 weeks before the date of the exam, the student will email the committee and arrange a date/time/location for the oral examination. The student should immediately inform the Graduate Academic Counselor of the date/time/location of the exam via e-mail.
• 3 weeks before the exam date, the student is given “research release” by the Committee Chair. The research release is only official when the committee chair sends an e-mail (cc’ing the Senior Academic Counselor, Committee Members, and Student’s PI) that states that the research release has started and reminds all involved of the exam date, day, time and location.
• Students are allowed to develop the topic for their original research proposal prior to the three week qualifying exam. However, they are expected to meet their quarterly RA obligations outside of the three week exam period, leaving them free to focus exclusively on the qualifying examination during the three designated weeks of the exam.
• One week prior to the oral examination, the student must submit copies of their written exam (including both the research progress report and original research proposal) to their committee members. The student must ask each committee member if an electronic or paper copy is desired (or both).
• The student has one week to prepare his/her oral presentation for the exam.
• No later than the day of the exam, the student prints the exam evaluation forms and summary page from the administrative website and brings them to the exam.

Establishing a Qualifying Exam Committee (Autumn 2012 – Summer 2015)
This examination is administered by a Qualifying Examination Committee consisting of four faculty:
• The student’s Research Advisor (cannot be committee chair, is a non-voting committee member)
• The Committee Chair (must be Bioengineering core faculty)
• Two members of the UW faculty (may include core, adjunct, or affiliate faculty from any department, affiliate faculty from industry are welcome)

The process for assembling the committee:

1. The student, consulting with his/her Research Advisor, compiles a list of candidates. Please note, the Chair of the committee must be a member of the Core Bioengineering Faculty
   a. (http://depts.washington.edu/bioe/people/core/core-faculty.html). A total of three faculty must be selected to serve on the Qualifying Exam Committee. However, the initial list of candidates should include 4-6 candidates, in the event that certain faculty are unable to serve.
2. The student contacts the proposed faculty (e-mail is okay) and requests their willingness to serve. This process should continue until 3 faculty agree to serve on the Qual Committee (including at least one core Bioengineering faculty member serving as chair).
3. The student requests the appointment of a Qualifying Exam committee. To do so, the student submits to the Senior Academic Counselor an e-mail with the following 3 PDF attachments (combining these PDF documents into one large PDF is preferred):
   a. the names, departments, e-mail addresses, and box numbers of the proposed examiners (listed numerically, specifying the selected chair)
   b. The student’s current CV (with research advisor’s name included) and
   c. A brief (no more than 1 page, single-spaced, typed) statement of research work completed (with identified strengths and weaknesses) and future research interests.
4. The Student Affairs Committee, headed by the Vice Chair, must approve the list of candidates. Once approved, these members, plus the Research Advisor, constitute the committee. If the Student Affairs Committee rejects the proposed Qualifying Exam committee, they will communicate their concerns regarding the committee composition to the student via the Senior Academic Counselor.
5. The Student Affairs Committee (via the Vice Chair/Senior Academic Counselor) formally establishes the Examination Committee and notifies the student and the committee via e-mail.
6. The student and committee will proceed according to the instructions provided in the committee confirmation e-mail.
Qualifying Exam Format (Autumn 2012 – Summer 2015)
The Examination has both written and oral components.

WRITTEN EXAMINATION

The written examination consists of two written documents:

(3) Research Report - A brief written summary of the student’s research progress achieved to date. The report should include a rationale for the research, a brief description of the methodology, results, discussion, and conclusions. In addition, the report should include a brief discussion of future research plans (one-half page maximum). While the student’s advisor and collaborators should be consulted to discuss research plans, the student alone must prepare the written report. No one (faculty, students, or staff) may review or edit the research report prior to submission to the committee. The research report should abide by the following formatting restrictions:

- The narrative may not exceed 4 single-spaced pages, including figures
  - The document should be single spaced, Arial font, 11pt minimum, 0.5” margins
- Additional pages may be used for references cited
- Appendices may be used sparingly to include lengthy calculations, data, or statements of help received

(4) Original Research Proposal – An original research proposal will be written in response to the NIH Exploratory / Developmental Research Grant Award (R21) call for proposals (http://grants.nih.gov/grants/guide/pa-files/PA-11-261.html). The R21 mechanism specifically seeks to support early stage project development. As described by the NIH parent announcement:

The evolution and vitality of the biomedical sciences require a constant infusion of new ideas, techniques, and points of view. These may differ substantially from current thinking or practice and may not yet be supported by substantial preliminary data. By using the R21 mechanism, the NIH seeks to foster the introduction of novel scientific ideas, model systems, tools, agents, targets, and technologies that have the potential to substantially advance biomedical research. The R21 mechanism is intended to encourage new exploratory and developmental research projects. For example, such projects could assess the feasibility of a novel area of investigation or a new experimental system that has the potential to enhance health-related research. Another example could include the unique and innovative use of an existing methodology to explore a new scientific area. These studies may involve considerable risk but may lead to a breakthrough in a particular area, or to the development of novel techniques, agents, methodologies, models, or applications that could have a major impact on a field of biomedical, behavioral, or clinical research.

The written exam content will include the following components:

- Specific Aims – 1 page
- Research Strategy (including all figures) – 6 pages
- References – no page limit
- NIH Biosketch (student only)

While the qualifying exam does not include all elements of a full NIH R21 submission, instructions in the NIH SF424 (R&R) Application Guide must be followed for the required documents (http://grants.nih.gov/grants/funding/424/) Students are not required to prepare a facilities or equipment statement. It is assumed that the student will have access to laboratory equipment and materials that could reasonably be expected to be available in a functional research laboratory in the appropriate field of study.
The topic of the original research proposal must be selected by the student without the assistance of their research advisor or their Qualifying Examination Committee, and be broadly related to the field of Bioengineering. The purpose of the Qualifying Examination research proposal is to evaluate the student’s creativity and ability to develop innovative ideas. To ensure the student’s independence, the proposed topic cannot draw from ideas in proposals that the advisor or other members of the research group may have previously shared with the student. The original research proposal must not be the same as the student’s current or future research, as described in their Qualifying Exam Research Report, and the proposal should be written specifically for the Qualifying Exam. A research proposal written for a prior class or fellowship cannot be reused or revised for the purpose of the R21 component of the Qualifying Exam. NOTE: The successful completion of the qualifying exam does not constitute an obligation on the part of the advisor to support the proposed research activities.

**ORAL EXAMINATION**

The student will have one week after the written examination is submitted to prepare his/her oral research proposal. The oral portion of the examination tests the student’s oral communication skills, the depth of the student’s knowledge of their research, the topic of their research proposal, as well as the breadth of his or her knowledge of Bioengineering as a discipline. The **oral examination has three parts:**

1. **Oral Presentation** - The student has approximately fifty to sixty minutes to present his or her research progress to date and original research proposal (20-30 minutes each). By default, the oral presentation is open to the public. BioE faculty, students and staff are encouraged to attend. If the student or advisor feels that the exam should be held in a closed-door session, to protect sensitive IP from disclosure, the Committee Chair should be consulted and must concur. Due to the importance of the public presentation to the Qualifying Exam, we encourage students to hold the exam in an open-door session unless absolutely necessary. During the oral public presentation, questions from the Committee will be limited to points of clarification.

2. **Questions from Audience** - The oral presentation is followed by an open question-and-answer period, after which the audience is dismissed.

3. **Questioning by the Committee** – Once the audience has been excused, the Qualifying Exam Committee may then question the student broadly. The Committee is expected to question the student’s understanding of the fundamentals related to their research and the original research proposal. The length of the closed portion of the oral exam is not specified, but is generally 1 – 1.5 hours.

**Evaluation of the Qualifying Exam (Autumn 2012 – Summer 2015)**

The student prints the exam evaluation forms from the administrative website prior to the exam ([https://www.bioeng.washington.edu/home/Students/StudentIndex.htm](https://www.bioeng.washington.edu/home/Students/StudentIndex.htm)) and brings them to the Chair at the exam.

At the close of the oral exam questioning, the Chair dismisses the student and the Committee grades the examination.

The exam will be evaluated in six specific areas:

1. Research aptitude, as demonstrated in the written research progress report and oral presentation
2. Scientific merit of the original research proposal
3. General knowledge and reasoning ability as demonstrated in written document and the question/answer session of the oral exam
4. Innovation of the original research proposal
5. Oral presentation skills (organization, clarity, poise, appropriate use of time, quality of audio-visual aids, etc.)
6. Written presentation skills (layout, organization, style, clarity, grammar, spelling, etc.)
Each area will be scored as Excellent, Good, Fair, or Poor.

- **Excellent:** reserved for a truly outstanding performance
- **Good:** clear competence in the given area
- **Fair:** some weaknesses worthy of corrective action were noted
- **Poor:** unacceptable performance for which no simple corrective action is deemed likely to raise the performance to the “good” category.

The voting members of the Qualifying Exam Committee will record their 6 scores of the performance of the candidate separately, qualitatively discuss the student’s performance, and then pool their final scores to produce one set of 6 scores on which the majority of the committee members agrees. No intermediate scores will be permitted. In cases in which the Committee’s voting members cannot reach unanimity on a score after the discussion period, the Chair will record an intermediate score, or the higher score, as appropriate. At the close of this portion of the exam all grades are considered final. It is suggested that the Research Advisor serve as the session reporter to record comments and recommendations during the exam session.

Based on the exam committee’s final scores, one of the following actions is required:

1. **Pass:** “Good” or “Excellent” performance in all areas.

2. **Conditional pass:** If the student received an evaluation of “Fair” on one or more sections of the exam; the committee has identified some specific weaknesses that need to be addressed. The committee may require specific actions to remedy these weaknesses. The assignment of a conditional pass constitutes a contract between the student and Department to fulfill the conditions. The recommendations will be noted by the Committee Chair in the Qualifying Exam report and summary letter. It is the student taking the Exam and the Chair’s responsibility to ensure that the Senior Academic Counselor receives the Qualifying Exam report within 48 hours of the completion of the original Qualifying Exam. Any conditions set must be completed satisfactorily before the student will be permitted to take the General Examination.

3. **Resubmission:** This is a specific case of conditional pass invoked when the written proposal has merit but contains fundamental weaknesses, which were not adequately addressed in the subsequent oral presentation. Additional work is needed before the written proposal is acceptable. The student will receive a critique of the written proposal and the Qualifying Exam report within 48 hours of the completion of the original exam date, and will have three weeks to revise and resubmit the proposal to the exam committee. By the end of the first week, it is recommended that the committee communicate clear expectations and answer any clarification questions. At the committee’s discretion, a follow-up oral presentation may be required at the end of the three-week period. This follow-up oral presentation will not be open to the general public. The Committee must then grade the resubmitted exam as either a Pass, Conditional pass, or Fail within one week of receipt (no further revision/resubmission will be permitted), and notify the Senior Academic Counselor. It should be noted that a resubmission does not guarantee a subsequent pass or conditional pass. If the resubmission does not make substantial improvements to the identified areas of weakness in the original exam, the student will receive a failing grade for the exam.

4. **Fail:** If a student receives a “poor” evaluation in research aptitude, general knowledge, or scientific merit, the student fails the exam. Alternatively, if the student receives a total of two or more “poor” scores in any of the evaluation categories, the student fails the exam. In the event of a fail, the committee can recommend that the student be given an opportunity to repeat the examination one time, no more than 6 months after the first attempt. The student may propose a new Examination Committee for the second attempt. If the student does not re-take the exam within 6 months after the first examination date, he or she is automatically terminated from the program. If a student fails the Qualifying Examination on the second attempt, or the student’s committee does not give the student the opportunity to repeat the exam, the full faculty decides, within 1 month of the outcome of the exam, whether the student will be offered a transfer to the master’s degree or be asked to leave the Bioengineering program. The student will be given notice and separated from the program as per the guidelines provided the Academic Student Employee Union and by the Graduate School regarding academic progress. If the examination is being taken for the second time, the committee has only options 1, 2, and 4.
After the Qualifying Exam (Autumn 2012 – Summer 2015)

CHAIR’S/COMMITTEE MEMBERS’ RESPONSIBILITIES

- Immediately after the exam, the Chair informs the student orally of the Committee’s decision.
  - All members of the Qualifying Exam Committee will then make themselves available for 1-hour discussions regarding the examination with the student at the student’s discretion within one week of the exam, but preferably within two days.
  - Within one week, the Chair will write the student a letter summarizing the committee’s findings.
  - No later than one month after the exam, the Chair will also send the Senior Academic Counselor copies of the letter and the written evaluations for the student’s file.

STUDENT’S RESPONSIBILITIES

- Within one quarter of passing the Qualifying Exam, the student will request to schedule a meeting with the Senior Academic Counselor to review the Exam documents and talk about “next steps.”

The Qualifying Examination (Autumn 2011 and Prior)

The Examination has both written and oral components. The written Examination format and content will include the following (without usual limitations imposed by budgets, personnel, precise timing, space, etc.):

- ~1 page for specific aims,
- 2-3 pages for background and significance,
- 13-16 pages for research design and methods.
- References (page number unlimited)

The criteria for the written Examination will be those set forth in George Eaves’ article Preparation of the Research-Grant Application: Opportunities and Pitfalls (1984). This document is available on the PhD/MS Commonview site in the “Exam Checklists, Forms, Qual Resources” section (department approved UW Net ID & Password required): www.catalyst.uw.edu.

The oral portion of the examination tests the student’s oral communication skills, the depth of the student's knowledge of the chosen topic, as well as the breadth of his or her knowledge of Bioengineering as a discipline. The oral examination has three parts. In the first part, which is open to the public, the student has approximately fifty minutes to present his or her work. Questions from the committee during this portion will be limited to points of clarification. The presentation is followed by an open question-and-answer period, after which the audience is dismissed. The committee may then question the student broadly. The length of the closed portion of the oral exam is not specified, but is generally about one hour.

Establishing a Qualifying Exam Committee (Autumn 2011 and Prior)

This examination is administered by a Qualifying Examination Committee consisting of four faculty, one of whom is the student’s research advisor. The process for assembling the committee is as follows:

- The student, consulting with the research advisor, compiles a list of six candidates (not including the research advisor), three of whom have primary appointments in Bioengineering. The student contacts the six proposed faculty and requests their willingness to serve.

- The student requests the appointment of a qualifying committee. To do so, the student submits to the Academic Counselor 1) the names, departments, e-mail addresses, and box numbers of the proposed examiners, 2) the student’s current CV and 3) statement of research interests.

- The Student Affairs Committee selects three faculty members from the list. These members, plus the research advisor, constitute the committee. Two of the members, including the Chair, must have primary appointments in Bioengineering. The research advisor may not chair the committee and will be a non-voting committee member. The Student Affairs Committee formally establishes the Examination Committee and notifies the student and the committee via e-mail.
Qualifying Exam Process (Autumn 2011 and Prior)
The Qualifying Exam Committee will meet within one month of the initial appointment, and ideally no less than one week before the anticipated beginning of the student’s preparation of the written portion of the exam. The student arranges this initial meeting, but does not attend the discussions that lead to formulation of questions. At this first meeting (usually scheduled for one hour), committee members assess the student’s progress based on the academic record, a brief presentation by the student of his or her research project, and other information provided by the research advisor and/or the student.

- The student ascertains that committee members are available during the desired exam time frame. The student sets the committee meeting dates, first checking to see that all members can attend on these dates.

- The student and the committee choose an examination date, allowing at least two hours for the exam, public questioning, and closed questioning. Qualifying Exams should not be scheduled during the final two weeks of fall quarter. This will allow adequate time for a student to resubmit a written exam (see below) without conflicts due to the December holiday break. Students are encouraged not to schedule a vacation immediately after the exam in case of resubmission. Exams should not be scheduled on the morning of the 2nd Tuesday of each month to avoid conflict with faculty meetings.

- The student schedules an exam room on the UW main campus. Room scheduling details are available on by logging into MyBIOE: www.mybioeng.washington.edu.

- No later than the last day of the month prior to the month of the exam, the student emails the Academic Counselor with the type of exam, title, date, time and location, advisor name, and names of all committee members, making sure to indicate the Chair. Exam information will be emailed to the BIOE community at the beginning of the month.

- The student prints the exam evaluation forms from the administrative website and brings them to the exam.

During or after the first meeting, each exam committee member, other than the student’s advisor, submits one or two questions to the chair; the full committee must approve the full set of questions, which should meet the following criteria:

- The topics for the questions will have minimal direct overlap with the student’s probable PhD research, but will be within the student’s thrust area.

- The questions will focus on areas of current scientific and/or engineering interest that will complement the student’s existing body of knowledge.

The chair submits the approved questions to the student five weeks before the date for the oral part of the exam. The intent is that the student spends one to two weeks doing library research before beginning to write the proposal. The student may consult with all sources, including other students and faculty, except the committee members, and may review previous examinations and grant applications if they are available. Exam committee members may be consulted only for clarification of the questions themselves.

Four weeks after being given the questions, the student submits the written document to all committee members for their review. One week after the committee members have received the written document, the oral examination will be held.
If the student becomes ill:

The Qualifying Exam is completed over a 5-week period and is designed to evaluate a student's scientific knowledge, research and presentation skills, creativity, and time management. If a student becomes seriously ill, the student immediately contacts the Academic Counselor and the Qualifying Exam Committee chair. A doctor's note is then presented to the Academic Counselor. The note need not disclose the illness, only the amount of recovery time necessary. The note will be used as the basis for further action to be decided by the Committee chair. In case of other emergencies, the student should immediately contact the Academic Counselor and the Committee chair.

If a committee member cannot continue his or her duties:

When establishing Qualifying Exam committees, the Vice-Chair will designate the QE chair and a 'spare'. The 'spare' will assume QE chair duties in situations where the QE chair must excuse him- or herself. If a committee member cannot continue, the Academic Counselor and the Committee chair should be notified as soon as possible. The Academic Counselor will contact a replacement faculty member from the original list of 6 faculty submitted by the student to establish the committee. In the event that a committee member should unexpectedly not attend an exam, the Committee chair may ask the student to reschedule or the Committee chair may momentarily adjourn the exam until a suitable replacement faculty member is found. If none can be found, the student must reschedule the exam.

Evaluation of the Qualifying Exam (Autumn 2011 and Prior)

The student prints the exam evaluation forms from the administrative web site prior to the exam (https://my.bioeng.washington.edu) and brings them to the Chair at the exam.

At the close of the oral exam questioning, the chair dismisses the student and the committee grades the examination.

The exam will be evaluated in four specific areas:

1. Scientific merit of the written and oral presentations of the proposal.
2. General knowledge and reasoning ability as demonstrated in the question/answer session.
3. Presentation (quality of oral and written presentation, style, organization, clarity, etc.).
4. Knowledge and understanding of expected prerequisites.

Each area will be scored as Excellent, Good, Fair, or Poor.

- **Excellent**: reserved for a truly outstanding performance
- **Good**: clear competence in the given area
- **Fair**: some weaknesses worthy of corrective action were noted
- **Poor**: unacceptable performance for which no simple corrective action is deemed likely to raise the performance to the “good” category.

The voting members of the committee will record their 4 scores of the performance of the candidate separately, qualitatively discuss the student’s performance, then pool their final scores to produce one set of 4 scores on which the majority of the committee members agrees. No intermediate scores will be permitted. In cases in which the voting members of the committee cannot reach unanimity on a score after the discussion period, the chair will record an intermediate score, or the higher score, as appropriate. At the close of this portion of the exam all grades are considered final. It is suggested that the research advisor serve as the session reporter to record comments and recommendations during the exam session.
Based on the exam committee’s final scores, one of the following actions is required:

1. Pass: “Good” or “Excellent” performance in all areas.

2. Conditional pass: If the student received an evaluation of “Fair” on one or more sections of the exam; the committee has identified some specific weaknesses that need to be addressed. The committee will require specific actions to remedy these weaknesses. The assignment of a conditional pass constitutes a contract between the student and Department to fulfill the conditions. The recommendations will be noted in the qualifying exam report. Any conditions set must be completed satisfactorily before the student will be permitted to take the General Examination.

3. Resubmission: This is a specific case of conditional pass invoked when the written proposal has merit but contains fundamental weaknesses, which were not adequately addressed in the subsequent oral presentation. Additional work is needed before the written proposal is acceptable. The student will receive a critique of the written proposal, and will have three weeks to revise and resubmit the proposal to the exam committee. By the end of the first week, it is recommended that the committee communicate clear expectations and answer any clarification questions. At the committee’s discretion, a follow-up oral presentation may be required at the end of the three-week period. This follow-up oral presentation will not be open to the general public. The committee must then grade the resubmitted exam as either a Pass, Conditional pass, or Fail within one week of receipt (no further revision/resubmission will be permitted) and notify the Senior Academic Counselor. Note: a resubmission does not guarantee a subsequent pass or conditional pass!

4. Fail: If a student receives a "Poor" evaluation in two or more categories the student fails the exam. The student can repeat the examination one time, no less than 6 months and no more than 12 months after the first time, and may propose a new Examination Committee for the second attempt. If the student does not re-take the exam within 12 months after the first examination date, he or she is automatically terminated from the program. If a student fails the Qualifying Examination on the second attempt, the full faculty decides whether the student will be offered a transfer to the master’s degree or be asked to leave the Bioengineering program.

If the examination is being taken for the second time, the committee has only options 1, 2, and 4.

Immediately after the exam, the chair informs the student orally of the committee’s decision. All committee members will then make themselves available for 1-hour discussions of the examination with the student at the student’s discretion within one week of the exam, but preferably within two days. Within one week, the chair will write the student a letter summarizing the committee’s findings. The Graduate Academic Counselor also receives copies of the letter and the written evaluations for the student’s file. It is the Chair’s responsibility to send the letter and forms to the Graduate Academic Counselor no later than one month after the exam.
The Supervisory Committee

The Supervisory Committee reviews academic performance and sees that the student’s progress is in accordance with the guidelines of both the Graduate School and the Student Affairs Committee. **Students should schedule annual meetings to receive feedback on research and degree progress.** The Supervisory Committee also administers and assesses the General and Final Examinations (described below).

- Following the successful completion of the Qualifying Exam, the student, in consultation with the research advisor, assembles a Supervisory Committee, which the research advisor will chair. This committee must be assembled no later than the end of Autumn quarter of the third year of the PhD program (and a minimum of 4 months before the General Exam). If a student fails the Qualifying Exam, or if the Qualifying Exam process is delayed in any way, then the graduate student will have one quarter, following the successful completion of the Qualifying Exam, to assemble his/her Supervisory Committee in consultation with the research advisor.

- The Supervisory Committee consists of a minimum of four members, including the research advisor, who will Chair the Committee, and a Graduate School Representative. At least two members of the Supervisory Committee must be members of the core Bioengineering faculty. A majority of the members must hold Graduate Faculty status, and any member without Graduate Faculty status may not serve as chairperson or Graduate School Representative. Check Graduate Faculty status at [http://www.grad.washington.edu/gradfac](http://www.grad.washington.edu/gradfac).

- The student is responsible for securing a Graduate School Representative (GSR). The GSR must be a member of the Graduate Faculty and Endorsed Graduate Faculty may accept unlimited GSR appointments. Faculty members with primary, joint, or affiliate appointments in the student’s degree-offering unit or the committee chair’s department are not eligible to serve as the GSR, as this is considered a conflict of interest: [http://www.grad.washington.edu/policies-doctoral/gsr-eligibility.shtml](http://www.grad.washington.edu/policies-doctoral/gsr-eligibility.shtml). Faculty members with primary, joint, adjunct, or affiliate appointments in other departments, who have Graduate Faculty Status, are eligible to serve as GSR; however, it is vital that a conflict of interest in the selection of the GSR be avoided. Budgetary relationships, personal relationships, or research and/or publication relationships between the GSR and either the student or the Committee Chair are examples of possible conflicts of interest. The GSR is responsible for ensuring that no such conflicts of interest or appearance of conflicts of interest exist and must attest to this upon request. For more information, please visit the following website: [http://www.grad.washington.edu/policies-memoranda/memo13.shtml](http://www.grad.washington.edu/policies-memoranda/memo13.shtml).

- To establish a Supervisory Committee, the student submits **Appendix G** and the Human and Animal Care Certification Form (online at [http://www.grad.washington.edu/forms/](http://www.grad.washington.edu/forms/)) to the Graduate Academic Counselor. The Graduate Program Coordinator then reviews the Committee. If approved, the Graduate Academic Counselor communicates with the Committee electronically through MyGradProgram. This notifies the Committee of the Supervisory Committee membership.

The Student Plan

- As soon as all courses are completed and no later than Winter quarter of the third year, the student meets with the Supervisory Committee to prepare and complete a Graduate Student Plan (see **Appendix H** and **Appendix B**). The Student Affairs Committee reviews the plan and gives final approval. The student then submits the plan, signed by the committee, to the Graduate Academic Counselor. All required courses must be completed prior to the General Exam. An approved Student Plan must be on file with the Academic Counselor before the General Exam is taken.
The General Examination
The General Examination is used to determine the soundness, significance, and originality of the student's research project, as well as test the clarity and thoroughness of the student's understanding. It provides an opportunity for the student to justify his/her research vision, describe the initial experimental plan, and present preliminary data demonstrating feasibility of the project. The General Examination affords an opportunity to correct deficiencies in the student's overall educational program that become evident during the course of the exam. Passing the examination advances the student to PhC or doctoral candidacy status.

It is Department policy that the General Examination must be performed no later than Summer quarter of year three (and no less than three quarters before the Final Examination). It is expected that by the time of the examination the student will have performed sufficient preliminary work to allow the Supervisory Committee to assess the likelihood of successful completion of the proposed PhD. Failure to complete the General Exam by the end of Summer quarter of the third year requires the student to submit a research advisor-approved petition to the Student Affairs Committee.

An approved Student Plan must be on file no later than the end of Winter quarter of the third year in the program.

Format of the General Examination
The General Examination has both written and oral components whose topics are the student's plan of research. It is expected that if no major changes occur in the direction of the student's research, parts of the written portion could eventually function as the introduction to the dissertation. Bioengineering faculty value something that is both concise and complete. The written examination should give the reader a good understanding of why and how the research project is to be undertaken. A format for both the written and oral examinations that has proven very successful is the following:

- Brief summary of the dissertation plan
- Review of the pertinent literature
- Summary of work performed up to that point by the student
- Evaluation of the key issues to be addressed in future work
- Detailed plan of work for the remainder of the dissertation

Students should confer with their research supervisors about the appropriate weighting of each section.

Note that to be able to complete the last two items, it is necessary to have a clear view of the issues to be addressed in the dissertation. Furthermore, if the direction of the dissertation is not in sharp focus at the time of the examination, it is difficult for the Supervisory Committee members to accurately assess the student’s readiness to proceed. For these reasons we strongly advise students to confer directly with all their committee members about the direction of their dissertation prior to commencing the written portion of the examination. Regular Supervisory Committee meetings will have been useful preparation. Continued conferral with faculty and fellow students about scientific issues during the preparation of the document is expected, but the text must be written in the student’s own words.

Features Assessed in the General Exam
Scientific and scholarly quality.
- Does the scientific proposal lead to the testing of an important hypothesis?
- Originality and novelty: a new contribution to the field; opening of a new approach or a new field.
- Inspiration for new experiments.
- Integration of facts, knowledge, and principles fundamental to a field or topic. Understanding of the salient background in the field and its significance.
- Adequacy and suitability of methods, quality of data, and depth and perception in analysis.
- Adequacy of data and analysis with respect to justifying the conclusions drawn.
Written Presentation

- Writing: Is it clear, concise, and in good English? Is sentence and paragraph structure sound?
- References: Are more used than necessary? Have key references been omitted? Are all statements suitable and compatible with the source?
- Data: Are any text, figures, and/or tables duplicated? Are data presented clearly, succinctly, and in logical order?
- Units of measure, abbreviations, symbols: Are there misuses of these? Are units standard and internally consistent? Are units given for all parameters and variables used in equations?
- Tables: Can they be simplified or condensed?
- Figures: Are they sharp and contrast with lettering proportionate to size of the figure? Are there legends? Are they simple yet clear and complete enough to allow understanding? Are units correct?
- Titles: Should be specific, with no superfluous or unnecessary words. A total of 85 letters and spaces are permitted in a title. Such expressions as "Studies on...", "Further investigations of...", "Observations on...", and "Preliminary observations" are forbidden.
- Abstract: Should be approximately 150 to 250 "standard" words in length; stated concisely in a single paragraph.

Oral presentation

- Were the evidence and arguments logically organized and convincing?
- Is the presentation clear, logical and professional?
- Is the science presented at a level showing good quality and depth, demonstrating the presenter's thorough understanding of the topic?
- Are answers to the questions thoughtful, direct, and to the point.
- Where information is lacking can the presenter devise a strategy for gaining the information?
- Are the slides well-constructed for clear visualization of the science?

NIH “Guiding principles for research involving animals and human beings.”

- All issues are addressed and requirements prepared as if they will be submitted to the appropriate UW Committee.

Ethics

- Was there any question of fraud, misrepresentation, misquotation, plagiarism or deliberate or even thoughtless falsification of data?

Process for General Examination

- The student’s Supervisory Committee administers the General Examination.

- Registration as a graduate student is required the quarter the General Exam is taken and candidacy is conferred.

- Scheduling the General Exam at a time when a quorum of Supervisory Committee members are available is the responsibility of the student. The quorum is the Chair, GSR, and 2 additional committee members, at least one of whom has Graduate Faculty status. At least two quorum members must be core Bioengineering faculty. Exams should not be scheduled during the morning of the 2nd Tuesday of each month when faculty meetings are held.

- The student schedules an exam room on the UW main campus. Bioengineering rooms may be scheduled online via MyBioE (https://my.bioeng.washington.edu). A username and password are required to enter MyBioE (typically students choose to use their UW NetID and password).

- Using the Request for General Exam (Appendix I), obtain exam request approval from ALL committee members. All members must approve of the request, including those who cannot attend. Email approval is sufficient but the email must be printed and attached to the request.
• Prior to returning Appendix I to the Graduate Academic Counselor, the student must submit the
online exam request at http://www.grad.washington.edu/mygrad/student.htm. This process should
be completed no less than 3 weeks prior to the exam date.

• The request must be received by the Graduate Academic Counselor no less than one week prior to
the exam date. An exam may not be held if the student has not submitted a signed Request for
General Exam form (Appendix I) within the proper timeframe.

• The request will be approved if the student has completed any work required as a condition of passing
the Qualifying Examination and if the Student Affairs Committee has approved an official Student Plan.
An approved Student Plan must be on file no later than Winter quarter of the student’s third year in the
program. All core Bioengineering courses must be completed before the General Examination, and the
student must have at least 18 graded credits at the 500-level.

• Approval of the Request for General Examination generates a warrant, which the student will need to
schedule in advance to pick-up from the Graduate Academic Counselor no less than three days
before the exam.

• The student picks up the warrant.

• No later than the last day of the month prior to the month of the exam, the student e-mails the
Graduate Academic Counselor with the type of exam, title, date, time and location, advisor name, and
names of all committee members, making sure to indicate the Chair. Exam information will be emailed
to the BIOE community and posted in Foege no later than the beginning of the month.

• The written document is submitted to all members of the Supervisory Committee no less than one week
before the Oral Examination. In preparation for the Oral Examination, the student may consult with
anyone but may not practice before his or her Advisor or any other member of the Supervisory
Committee.

• The student takes the warrant to the oral portion of the exam and gives it to the committee chair prior
to the start of the examination.

• During the oral examination, the Chairperson, the Graduate School Representative, and at least two
additional examining committee members (one of whom must have Graduate Faculty status) must be
present. At least two present committee members must be core Bioengineering faculty.

• During the quarter the General Examination is taken, a student is eligible to enroll in BIOEN 800 for his or
her Research Credits (this is in place of BIOEN 600). The PhD requires that 27 credits of BIOEN 800 are
completed over at least three quarters between the General and Final Examinations.

The Oral Examination lasts approximately 2 hours. In the first 30-40 minutes, which are open to interested
members of the public, the student presents his or her research plan. Questions by the committee during this
portion will typically be limited to points of clarification. A question and answer period ensues, after which all
but the committee and the student are dismissed. The student then answers questions from the committee.
At the end of the examination the chair dismisses the student and the committee discusses and votes on the
student's performance. If the General Examination has been taken only once, the Committee has four options:

1. it can pass the student;
2. it can pass the student under the condition that some remedial action be taken within a specified
time;
3. it can fail the student and advise him or her to retake the Examination only after completing some
remedial action;
4. it can fail the student.

If the examination is failed, the committee is free to require repeating any or all sections of the General
Examination, after any required tasks and after any specified time. The Supervisory Committee may
recommend that the Dean of the Graduate School permit one reexamination, after further period of study. Any members of the committee who do not agree with the majority opinion are encouraged to submit a minority report to the Dean of the Graduate School. If the Examination has already been failed once, the committee has only options 1, 2, and 4.

- The student's research advisor (and any other committee members who wish to) will discuss the outcome of the Examination and the deliberations of the committee with the student in a private meeting as soon as possible after the Examination. Shortly afterwards the advisor will draft a letter detailing the results of the Examination, to be sent to the student with copies to the Supervisory Committee members and the Graduate Academic Counselor. This letter will be placed in the student's permanent file.

- The warrant must be signed by all Supervisory Committee members and returned to the Graduate Academic Counselor, who will inform the Graduate School and place a copy in the student's file. The signed warrant notifies the Graduate School of the student’s new status as PhC.

**Admission to Candidacy for Doctoral Degree**

Thereafter, the student is identified and designated as a Candidate for the appropriate doctoral degree and is awarded the Candidate's Certificate. Candidacy is conferred on the last day of a quarter; the Graduations and Academic Records office issues certificates approximately 3-4 months later. After achieving Candidate status, the student ordinarily devotes his or her time primarily to the completion of research, writing of the dissertation, and preparation for the Final Examination.

The Candidate Certificate and the doctoral degree may not be awarded the same quarter.

**Dissertation**

The doctoral dissertation is a document that demonstrates that its author has completed an original and independent investigation of a significant problem. The dissertation reflects the student’s competence to deal with a significant research problem, to understand its position in the field of bioengineering, to glean significant information from the work done and to master the techniques necessary to extract, interpret and use the data that come from the work. The dissertation provides evidence that the student can recognize an important problem, acquire the data to answer the questions posed within that problem, and extend the results of the answered questions to other problems of significance.

- Beginning Spring Quarter 2012, all graduate students are required to submit an Electronic Thesis/Dissertation (ETD), including students using the Graduate Registration Waiver Fee. The Graduate School’s Style and Policy Manual for Theses and Dissertations outlines format requirements. It is available on-line at: [http://www.grad.washington.edu/students/etd/info.shtml](http://www.grad.washington.edu/students/etd/info.shtml).

- Steps 1 and 2 of the ETD process can be completed in advance.

**Reading Committee**

Defense of the doctoral dissertation, also called the Final Examination, is scheduled when the Supervisory Committee agrees that the research is complete. The Reading Committee determines readiness of the dissertation.

- To establish a Reading Committee, the student sends the names, e-mail addresses, departments, and box numbers of at least 3 members of the Supervisory Committee (at least one of whom must be on the core faculty) to the Graduate Academic Counselor. The student must identify in the e-mail who will be the Reading Committee Chair. It is expected that, by submitting these names, the faculty have agreed to be on the Reading Committee and understand and accept their individual roles' responsibilities as defined by the Graduate School: [http://www.grad.washington.edu/policies/doctoral/reading-committee.shtml](http://www.grad.washington.edu/policies/doctoral/reading-committee.shtml).

- The Reading Committee must be established at least 3 weeks prior to the defense; however, Bioengineering faculty recommend six months lead time.
Dissertation Defense Timeline

- Beginning Spring Quarter 2012, all graduate students are required to submit an Electronic Thesis/Dissertation (ETD): http://www.grad.washington.edu/students/etd/. It is never too early to start the ETD process (steps one and two) or the process of scheduling an exam. The exam must be scheduled no later than the last day of the quarter. Exams scheduled after the last day of the quarter are not eligible to use the Registration Waiver Fee option (see note below). **It is best to schedule the defense no later than 1 week before the last day of the quarter** because the committee will likely recommend changes to the written document after observing the oral exam. Also, document production and signatures can take at least one day.

- The Graduate School is particular about format. See http://www.grad.washington.edu/students/etd/info.shtml

- Scheduling the Final Exam at a time when a quorum of Supervisory Committee members are available is the responsibility of the student. The quorum is Chair, GSR, and 2 additional committee members, at least one of whom has Graduate Faculty status. At least two quorum members must be core Bioengineering faculty. Exams should not be scheduled during the morning of the 2nd Tuesday of each month when faculty meetings are held.

- The student must be registered in credits during the quarter the exam is held.

- The student schedules an exam room on the main UW campus. Room scheduling details are available via MyBioE: https://my.bioeng.washington.edu. Schedule the room for a minimum of 2.5 hours to allow 15 minutes for set-up, 1 hour for defense and audience questions, 1 hour for closed committee questions, and 15 minutes for clean-up.

- A complete (or nearly complete) copy of the dissertation is sent to all committee members at least **3 weeks prior** to the Final Exam.

- Using the Request for Final Exam (Appendix J), obtain exam request approval from ALL committee members and submit Appendix J to the Graduate Academic Counselor. All members must approve of the request, including those who cannot attend. Email approval is sufficient but the email must be printed and attached to the request.

- Prior to returning Appendix J to the Graduate Academic Counselor, the student must submit the online exam request at http://www.grad.washington.edu/mygrad/student.htm. **This process should be completed no less than 3 weeks prior to the exam date.**

- The request must be received by the Graduate Academic Counselor no less than **3 weeks prior** to the exam date. An exam may not be held if the student has not submitted a signed Request for Final Exam form within the proper timeframe.

- Approval of the Request for the Final Examination generates a warrant, which the student will need to schedule in advance to pick up from Graduate Academic Counselor no less than **three days** before the exam.

- The student picks up the warrant and Doctoral Dissertation Reading Committee Approval Form (http://www.grad.washington.edu/students/etd/phd-approval-form.pdf) from the Academic Counselor.

- **No later than** the last day of the month prior to the month of the exam, the student emails the Graduate Academic Counselor with the type of exam, title, date, time and location, advisor name, and names of all committee members, making sure to indicate the Chair. Exam information will be emailed to the BIOE community and posted in Foege no later than the beginning of the month.

- The student takes the warrant and Reading Committee Approval form to the oral portion of the exam and gives it to the committee chair prior to the start of the examination.
During the oral examination, the Chairperson, the Graduate School Representative, and at least two additional examining committee members (one of whom must have Graduate Faculty status) must be present. At least two present committee members must be core Bioengineering faculty.

If the Final Examination is satisfactory, the Supervisory Committee members sign the warrant and return it to the student. The student then schedules an appointment with the Graduate Academic Counselor to submit the signed warrant and review final steps for graduation.

After completion of the Final Examination the warrant must be signed by all Supervisory Committee members and returned to the Graduate Academic Counselor, who will inform the Graduate School and place a copy in the student’s file. The signed warrant notifies the Graduate School of the student’s new status as PhC.

Note: to graduate in the same quarter as the Final Exam, the student must electronically submit the dissertation by 11:59 PM the last day of the quarter (the Graduate School no longer accepts paper copies of the dissertation). Be aware that if changes are needed to the dissertation format, the Graduate School will contact the student via email. You must respond and make appropriate changes in order to successfully graduate.

The student must also submit the certificate of completion of the “Survey of Earned Doctorates” and a completed and signed Doctoral Dissertation Reading Committee Approval Form to the Graduate School by 4:30pm on the Monday following the last day of the quarter: http://www.grad.washington.edu/students/etd/phd-approval-form.pdf. The student is automatically enrolled in the “Survey of Earned Doctorates” once s/he begins the ETD process.

If the correct documents are not properly submitted to the Graduate School or these deadlines are not met, the Graduate School will allow a student to pay a $250 late fee (in lieu of tuition) if the dissertation is submitted within 2 weeks of the last day of that quarter; however, the Final Exam must be taken by the last day of the quarter. Eligibility information and details regarding the Graduate Registration Waiver Fee are online at http://www.grad.washington.edu/policies/general/reqwaiver.shtml.

Dissertation Document Requirements

Beginning Spring Quarter 2012, all graduate students are required to submit an Electronic Thesis/Dissertation (ETD), including students using the Graduate Registration Waiver Fee: http://www.grad.washington.edu/students/etd/info.shtml.

Bioengineering will pay for the binding of three additional hardbound copies of the dissertation (one for the student, one for the research advisor, and one for the department); contact the Graduate Academic Counselor for the correct budget number. Students who want extra copies must pay for them. The student is responsible for any printing costs. The copies are made at UW Creative Communications (http://f2.washington.edu/fm/c2/printing-copying/printing-copying) and can be bound in any color. If the student is leaving campus before the copies are ready, the copies should be sent to the academic counselor for distribution. The departmental copy is kept in Foege N240 (the Foege Student Lounge).

Graduation

The student must be registered during the quarter that he or she graduates unless the Registration Waiver Fee option is used. All appropriate deadlines must be met or the degree will not be conferred. The degree will be posted to the UW transcript 3-4 weeks after the end of the quarter in which it is conferred. Diplomas are mailed out approximately 3-4 months later.
The University’s main graduation ceremony is held immediately after the end of spring quarter. August graduates are allowed to walk in the June ceremony. The web site is at www.uwgraduation.com. The Department holds its own graduation celebration, during which our BS, BS/MS, PharBE, MS, and PhD graduates are recognized and honored. The Departmental ceremony is held the evening prior to the University ceremony.

Questions regarding Graduation can be directed to Graduate Enrollment Management Services, G-1 Communications, 685-2630 or by e-mail: uwgrad@uw.edu.

Taking Leave of the Department
All graduating or otherwise exiting students must go through the official Departmental checkout process. The process involves lab checkout, returning of keys, payroll information, contact information and an exit interview with the Graduate Program Coordinator. The process begins when your name is added by the Graduate Academic Counselor to the department’s catalyst exit survey.
| Year 1            | • Lab Rotations 1-2 quarters (BIOEN 598)  
|                  | • Lock into permanent lab/advisor end of Winter quarter (must petition for 3rd rotation)  
|                  | • Required coursework                     |
| Year 2           | • Required coursework and research (BIOEN 600)  
|                  | • Qualifying Exam by end of Spring quarter  
|                  | • One retake allowed (committee's decision)  
|                  | • If students fails retake, allowed to complete MS requirements                     |
| Year 3           | • Complete coursework                     
|                  | • Form Supervisory Committee (Autumn)     
|                  | • Submit Graduate Student Plan (Winter)   
|                  | • General Exam by end of Spring quarter (passing grants Candidate status)           |
| Year 4/5         | • Dissertation research (min. 27 credits of BIOEN 800 over 3 quarters)             
|                  | • Establish Reading Committee (6 months prior to Final Exam)                       
|                  | • Final Exam/Defense                    |
Section 4: The MS Degree

BS/MS
The department has a BS/MS option. Students who wish to participate in the BS/MS program must formally apply to the MS program through the Graduate School’s online application: https://www.grad.washington.edu/applForAdmiss/. The application must be received prior to BS graduation. The deadline for International and Domestic applicants is December 1, 11:59pm (Pacific). No late or incomplete applications will be considered. Please consult the Graduate Academic Counselor and refer to the BS/MS Handout for additional information. A Teaching Assistantship is not required for BS/MS students.

Once admitted to the Master’s track of the BS/MS program, it is possible to apply for admission to the PhD. The student must submit all required materials for the PhD application, including the Graduate School application: https://www.grad.washington.edu/applForAdmiss/. However, instead of submitting these materials online, the student will print all documents and submit them to the Graduate Admissions Committee via the Graduate Academic Counselor.

The student may or may not be admitted to the PhD with rotation (i.e. first-year) funding. Such a decision would be made by the Graduate Admissions Committee and be clearly stated in the offer of admission. The deadline to apply to switch to the PhD is March 15 (prior to MS graduation). The later deadline gives the applicant sufficient time to develop his or her research and gives the faculty advisor sufficient time to evaluate the research.

MS BIOE
The MS BIOE is evidence of ability to work as an engineer and researcher who is capable of some independent investigation and who can present the results of that investigation cogently. The holder of the master’s degree will have completed significant coursework and a thesis that describes an independent investigation and will have passed a final examination of the research underlying the thesis.

The general goals and objectives for the master’s degree program are the same as for the doctoral program. (See Section 3.)

The expected background knowledge for the Master’s degree program is the same as for the doctoral program (see Section 3).

General Requirements for the MS Degree
Refer to the Graduate School web site at http://www.grad.washington.edu/students/masters/index.shtml

Note that the Master’s degree in Bioengineering requires a thesis.

Specific Course Requirements for the MS Degree
The following requirements apply to students who entered Autumn 2012 and later:
To keep track of your coursework, please see the MS Planning Sheet, Appendix C. The degree provides two track options (the Bioengineering Professional Series – BPS and the Program on Technology Commercialization–PTC). The degree requires 26 course credits, plus research credits. Petitions are not encouraged.

Bioengineering Professional Series (BPS) Track
- 4 credits Minimum Required: BIOEN 599 (530) – Literature Analysis (2 credits, CR/NC) and BIOEN 531 – Proposal Writing (2 graded credits);
- 3 credits of Biostatistics: BIOSTAT 517 (4), 524 (3); STAT 502 (4), 504 (4), 512 (4); BIOEN 599 (3); UCONJ 510 (2.5) - requires a petition to the Student Affairs Committee;
- 19 credits of electives;
  o 12 graded credits must be from 3 of BIOEN’s 5 research themes
- 6 credits in the “Focus Theme” (or “Advanced” credits)
- 6 credits in two of the four remaining themes.
  - 7 additional electives credits
- 2 credits can be CR/NC

Program on Technology Commercialization (PTC) Track
- 4 credits Minimum Required: BIOE 504 – Intro. to Tech. Commercialization (4); BIOE 505 – Studies in Tech. Commercialization (4); BIOE 506 – PTC III (1 CR/NC) + ENTRE 540 – Business Plan Practicum (2-4 CR Variable);
- 3 credits of Biostatistics: BIOSTAT 517 (4), 524 (3); STAT 502 (4), 504 (4), 512 (4); BIOE 599 (3); UCONJ 510 (2.5) – requires a petition to the Student Affairs Committee;
- 19 credits of electives
  - 12 graded credits must be from 3 of BIOE’s 5 research themes
  - 6 credits in the “Focus Theme” (or “Advanced” credits)
  - 6 credits in two of the four remaining themes.
  - 7 additional electives credits
- 2 credits can be CR/NC

Additional MS Requirements
- Students will complete 1-2 laboratory rotations. The laboratory rotations occur during the first year of the MS degree.
- 18 credits must be at the 500-level (BIOE + any department)
- 18 graded credits must be at the 400/500-level (BIOE + any department)
- 9 credits must be Bioengineering course credits
- Students must complete 9 thesis research credits of BIOE 700 prior to MS graduation.

The following requirements apply to students who entered Autumn 2006 and later:
To keep track of your coursework, please see the MS Planning Sheet, Appendix C. The degree requires 27 course credits. Petitions are not encouraged.

- BIOE 501: Molecular Bioengineering (4 credits)
- BIOE 502: Cellular Bioengineering (4 credits)
- BIOE 503: Systems Bioengineering (4 credits)
- BIOE 510: Introduction to Bioengineering (1 credit)
- 4 credits of Biostatistics: BIOST 511 or BIOE 541
- 10 credits of research-related electives selected in consultation with faculty advisor. At least one course must be at the graduate level.

Additionally, students will complete 1-2 laboratory rotations. The laboratory rotations occur during the first year of the MS degree. Students must also complete 9 credits of BIOE 700 prior to graduation.

The following requirements apply to students who entered Autumn 2001 - Summer 2006:
To keep track of your coursework, please use the MS Planning Sheet, Appendix C. Note: A single course may not count for two separate requirements.

- 8 credits of Bioeng. Principles of Physiology: BIOE 588, 589
- 4 credits of Advanced Instrumentation: BIOE 436 or 581
- 3 credits of Biotransport: BIOE 550
- 1 credit, Introduction to Bioengineering: BIOE 510
- 4 credits of Biostatistics: BIOST 511
- 3-5 credits of Biochemistry or Cell Biology. Choose from:
  - BIO 405, 406, 440, 441, 442, 530
  - BIOL 401, 402
  - CONJ 531, 532, 533 (1.5 credits each; offered sequentially during Autumn quarter; must take at least two to earn enough credit)
  - MCB 511
  - MICROM 410, 431
- 4 credits of Engineering Breadth. Choose from:
- BIOEN 540, 568, 599 (Microfabrication and Microfluidics) or Graduate engineering courses from other engineering departments (this excludes Technical Communication courses and courses cross-listed with Bioengineering)
- 6 credits within a single thrust area

Switching from MS to PhD

MS Track

Once admitted to the Master's track, it is possible to switch to the Doctoral program. In order to initiate the switch, a student must submit the required documents prior to completing the Master's program. To apply, the student must complete all required materials for the PhD application, including the online application: https://www.grad.washington.edu/applForAdmiss/. However, instead of submitting the application to the Graduate School with the fee, the student will print the application and supplemental materials (personal statement, CV/Resume, test scores, all unofficial transcripts, and 3 letters of Recommendation), and submit the completed application and supplemental material to the Graduate Academic Counselor. The Graduate Admissions Committee will review the completed application and will determine the application outcome. As the application must be received/reviewed within the regular admissions cycle (December – March), the latest submission date is to apply to switch to the PhD is March 15.

If a student plans to graduate with a Master's degree but would like to return for a PhD within a year, to avoid reapplication, the student must follow the same process as above (complete, print, and submit to the Academic Counselor: the graduate application https://www.grad.washington.edu/applForAdmiss/, CV/resume, personal statement, unofficial transcripts, test scores, and 3 letters of recommendation), as well as a petition to the Student Affairs Committee for up to a 1-year leave of absence. The petition for a leave of absence and relevant application materials must be completed and submitted no later than March 15th (before MS graduation) in order to be reviewed by both the Student Affairs and Graduate Admissions Committees. Extensions to the leave of absence will not be granted.

If there has been a break in enrollment after MS graduation and the student had not previously submitted a petition and all relevant application materials prior to March 15th and MS graduation, the student must reapply to the Graduate School and submit the application fee by the International/Domestic Application deadlines: https://www.grad.washington.edu/applForAdmiss/. The student may or may not be admitted to the PhD with rotation (i.e. first-year) funding. Such a decision would be made by the Admissions Committee and be clearly stated in the offer of admission. All students admitted to the PhD program must take the Qualifying Exam.

BS/MS Track

BS/MS students must submit all required materials for the PhD application, including the Graduate School application: https://www.grad.washington.edu/applForAdmiss/. However, instead of submitting these materials, the student will print all documents and submit them to the Graduate Admissions Committee via the Graduate Academic Counselor.

The BS/MS student may or may not be admitted to the PhD with rotation (i.e. first-year) funding. Such a decision would be made by the Admissions Committee and be clearly stated in the offer of admission. The deadline to apply to switch to the PhD is March 15 (prior to MS graduation). The later deadline gives the applicant sufficient time to develop his or her research and gives the faculty advisor sufficient time to evaluate the research.

Individual Development Plan (IDP)

All MS/PhD students are required to submit an IDP once per year, by June 30th. The purpose of an IDP is to prepare you for your future career. It is important that you think carefully about your individual career goals and the skills that you need to be successful in that career. Your IDP should be considered a living document that will evolve over time as you move through your training. You will be expected to update it in consultation with your mentor before you establish your Supervisory Committee and prior to each annual committee meeting once your Supervisory Committee has been established. You may also wish to update it at or after your Supervisory Committee meeting or after quarterly or semi-annual meetings with your mentor(s).
Timeline and Progression through the MS Degree

Please review the “First Year Advising and Satisfactory Progress” information in Section 3. Satisfactory progress in the first-year is the same for MS and PhD students though Master’s students are not looking ahead to a Qualifying Exam.

The master’s thesis is a document that demonstrates the author’s ability to solve a problem independently and to describe the solution clearly and succinctly. The document must show the way that the problem was posed, the methods used for its solution, and the successful solution of the problem. The thesis should suggest the importance of the results and their application to other problems of the same kind. The thesis is based on work performed while taking at least 9 credits of BIOEN 700.

Beginning Spring Quarter 2012, all graduate students are required to submit an Electronic Thesis/Dissertation (ETD): http://www.grad.washington.edu/students/etd/. It is never too early to start the ETD process (steps one and two) or the process of scheduling an exam. The exam must be scheduled no later than the last day of the quarter. Exams scheduled after the last day of the quarter are not eligible to use the Registration Waiver Fee option (see note below). It is best to schedule the thesis defense no later than 1 week before the last day of the quarter because the committee will likely recommend changes to the written document after observing the oral exam. Also, document production and signatures can take at least one day.

The Graduate School is particular about format. See http://www.grad.washington.edu/students/etd/info.shtml

- Total time to completion of the Master’s degree is expected to take from six to eight quarters. It is a Graduate School requirement that all work for the Master’s Degree must be completed within 6 years.

- By the end of their second quarter of enrollment, master’s students must find a research advisor with whom to prepare a plan of study and research. The research advisor will ultimately supervise the thesis.

- A master’s student is expected to have a Supervisory Committee appointed by the fourth quarter (BS/MS students should have a committee by the second quarter). The Supervisory Committee consists of a minimum of two and no more than four members. According to Memo 13 of the Graduate School: http://www.grad.washington.edu/policies/memoranda/memo13.shtml, at least one-half of the Committee, including the Chairperson, must be members of the Graduate Faculty (see http://www.grad.washington.edu/gradfac). The Department stipulates that at least one of the Supervisory Committee members must be Core Faculty in Bioengineering: http://depts.washington.edu/bioe/people/core/core-faculty.html. Master’s Supervisory Committees do not require a Graduate School Representative (GSR).

- To establish a Supervisory Committee, the student submits Appendix G (see the back of this Handbook) and the Human and Animal Care Certification Form (online at http://www.grad.washington.edu/forms) to the Graduate Academic Counselor. The Graduate Program Coordinator then reviews the Committee. If approved, the Graduate Academic Counselor communicates with the Committee electronically to the Graduate School through MyGradProgram. This notifies the Committee of the Supervisory Committee’s membership.

- Within one quarter of establishing a Supervisory Committee, the Graduate Student Plan (see Appendix H and C) is drawn up by the student in consultation with the research advisor. The student gives the plan to the Graduate Academic Counselor to submit to the Student Affairs Committee for approval.

Master’s students may begin taking BIOEN 700 after their student plan is approved. The student must complete at least 9 credits of BIOEN 700 prior to graduation and the student must be registered in credits during the quarter the exam is held.
• When the Supervisory Committee and the student agree that the thesis is ready to defend, the student applies to the Graduate School for the Master's Degree. The application is online at https://www.grad.washington.edu/student/mastapp.aspx. A student may apply up to the 7th week of the graduation quarter. Please note that the web application will ask whether this is a thesis or non-thesis option. We have only a thesis option for our master's degree, so this option must be selected. The web application will include a diploma request and an exit questionnaire. The Graduate School will confirm receipt of the request by email.

• Scheduling the Master's Defense at a time when a quorum of Supervisory Committee members are available is the responsibility of the student. The quorum is Chair and at least one additional committee member. At least ½ the committee has Graduate Faculty status: http://www.grad.washington.edu/policies/memoranda/memo13.shtml. At least one quorum member must be core Bioengineering faculty. Exams should not be scheduled during the morning of the 2nd Tuesday of each month when faculty meetings are held.

• The student schedules an exam room on the main UW campus. Room scheduling details are available via MyBioE (https://my.bioeng.washington.edu). Schedule the room for a minimum of 2.5 hours to allow 15 minutes for set-up, 1 hour for defense and audience questions, 1 hour for closed committee questions, and 15 minutes for clean-up.

• The exam must be scheduled no later than the last day of the quarter. Exams scheduled after the last day of the quarter are not eligible to use the Registration Waiver Fee option: http://www.grad.washington.edu/policies/general/regwaiver.shtml. It is best to schedule the thesis defense no later than 1 week before the last day of the quarter because the committee will likely recommend changes to the written document after observing the oral exam. Also, document production and signatures can take at least one day.

• Using the Request for Master's Degree Exam form (Appendix K), the student obtains exam request approval from all committee members. All members must approve of the request, including those who cannot attend. Email approval is sufficient but the email must be printed and attached to the request.

• After the faculty advisor has reviewed and approved of the thesis, a complete or nearly complete copy must be submitted to Supervisory Committee members at least 2 weeks before the exam date.

• Prior to returning Appendix K to the Graduate Academic Counselor, the student must submit the online exam request at http://www.grad.washington.edu/mygrad/student.htm. This process should be completed no less than 2 weeks prior to the exam date.

• The request must be received by the Graduate Academic Counselor no less than 2 weeks prior to the exam date. An exam may not be held if the student has not submitted a signed Request for Master's Degree Exam form within the proper timeframe.

• Approval of the Request for the Master's Degree Examination generates a warrant, which the student will need to schedule in advance to pick up from Graduate Academic Counselor no less than three days before the exam.

• The student picks up the warrant and the Master's Supervisory Committee Approval form: http://www.grad.washington.edu/students/etd/thesis-approval-form.pdf.

• No later than the last day of the month prior to the month of the exam, the student
emails the Academic Counselor with the type of exam, title, date, time and location, advisor name, and names of all committee members, making sure to indicate the Chair. Exam information will be emailed to the BIOE community and posted in Foege no later than the beginning of the month.

- The student takes the warrant and the Supervisory Committee Approval form to the oral portion of the exam and gives both forms to the Committee Chair prior to the start of the examination.

- During the examination, the Chairperson and at least one additional examining committee member must be present (at least ½ of the committee must have Graduate Faculty Status: https://www.grad.washington.edu/gradfac/). At least one present committee member must be core Bioengineering faculty.

- The thesis is defended orally and, if the student passes the defense, the members of the Supervisory Committee will sign the warrant and return it to the student. By signing the warrant, the committee certifies that the student has met all departmental requirements.

- The signed warrant must be returned to the Graduate Academic Counselor no later than the last day of the quarter (last day of exams) in which the student expects to graduate. The Graduate Academic Counselor will inform the Graduate School and place a copy in the student’s file.

- The Supervisory Committee will also sign the Master’s Supervisory Committee Approval form: http://www.grad.washington.edu/students/etd/thesis-approval-form.pdf. The Master’s Supervisory Committee Approval form is due to the Graduate School (G-1 Communications) no later than 4:30pm the Monday following the last day of the quarter. Failure to submit may result in not graduating.

- Note: to graduate the same quarter as the Master’s Degree Exam, the student must electronically submit the dissertation by 11:59 PM the last day of the quarter in which the student expects to receive the degree: http://www.grad.washington.edu/students/etd/. Be aware that if changes are needed to the dissertation format, the Graduate School will contact the student via email. You must respond and make appropriate changes in order to successfully graduate.

- If the correct documents are not properly submitted to the Graduate School or these deadlines are not met, the Graduate School will allow a student to pay a $250 late fee (in lieu of tuition) if the dissertation is submitted no later than 14 calendar days following the last day of the quarter in which all degree requirements were met. Eligibility information and details regarding the Graduate Registration Waiver Fee are online at http://www.grad.washington.edu/policies/general/regwaiver.shtml

- If the examination is not satisfactory, the committee may recommend to the Dean of the Graduate School that the student be allowed to take another examination after a period of further study.

**Master’s Degree Document Requirements**

Beginning Spring Quarter 2012, all graduate students are required to submit an Electronic Thesis/Dissertation (ETD), including students using the Graduate Registration Waiver Fee: http://www.grad.washington.edu/students/etd/info.shtml.

Bioengineering will pay for the binding of three additional hardbound copies of the dissertation
(one for the student, one for the research advisor, and one for the department); contact the Graduate Academic Counselor for the correct budget number. Students who want extra copies must pay for them. The student is responsible for any printing costs. The copies are made at UW Creative Communications (http://f2.washington.edu/fm/c2/printing-copying/printing-copying) and can be bound in any color. If the student is leaving campus before the copies are ready, the copies should be sent to the academic counselor for distribution. The departmental copy is kept in Foege N240 (the Foege Student Lounge).

Graduation
The student must be registered during the quarter that he or she graduates unless the Registration Waiver Fee option is used. An application for graduation must be submitted online according to the Graduate School’s deadline. See http://www.grad.washington.edu/stsv/mastapp.aspx

All appropriate deadlines must be met or the degree will not be conferred. The degree will be posted to the UW transcript 3-4 weeks after the end of the quarter in which it is conferred. Diplomas are mailed out approximately 3-4 months later.

The University’s main graduation ceremony is held immediately after the end of spring quarter. August graduates are allowed to walk in the June ceremony. The web site is at www.uwgraduation.com. The Department holds its own graduation celebration, during which our BS, BS/MS, PharBE, MS, and PhD graduates are recognized and honored. The Departmental ceremony is held the evening prior to the University ceremony.

Questions regarding Graduation can be directed to Graduate Enrollment Management Services, G-1 Communications, 685-2630 or by e-mail: uwgrad@uw.edu. The Office of Ceremonies is at (206) 543-2592 or commence@uw.edu.

Taking Leave of the Department
All graduating or otherwise exiting students must go through the official Departmental checkout process. The process involves lab checkout, returning of keys, payroll information, contact information and an exit interview with the Vice-Chair. The process begins when your name is added by the Graduate Academic Counselor to the department’s catalyst exit survey.
MS Program Timeline and Milestones

Year 1
- Rotations: 1-2 quarters
- Coursework
- Begin Research
- Secure permanent PI/lab Winter quarter

Year 2
- Establish Supervisory Committee: Summer or Autumn
- Submit Academic Plan: Winter
- Finish coursework
- Thesis
- Final Exam/Submit Thesis

BS/MS Program Timeline and Milestones

Autumn
- Coursework
- Begin thesis

Winter
- Establish Supervisory Committee
- Submit Academic Plan
- Continue coursework and thesis

Spring
- Finish coursework (as needed) & thesis
- Final Exam/Submit Thesis
- Petition for Summer extension (as needed)
Section 5:
The PharBE Degree

Pharmaceutical Bioengineering Engineering Degree
The Master of Pharmaceutical Bioengineering (PharBE) is a professional degree program administered jointly by UW Professional and Continuing Education and the Department of Bioengineering. The Master of Pharmaceutical Bioengineering program is an evening degree program designed to allow working engineers, scientists, researchers, and professionals in the biotechnology, pharmaceutical, and related industries to explore advanced education in the area of molecular and cellular biology, drug discovery and design, pharmaceutics, and translational pharmaceutics. Professionals may also complete three advanced certificate programs without applying for degree status.

Admission
Pharmaceutical Bioengineering certificate students may be admitted after completion of one certificate; however, admission is not guaranteed and additional courses may be required to ensure that students have met the Graduate School’s requirements for matriculated credits.

Additionally to ensure that students have met the Graduate School’s requirements for matriculated credits, degree applications are not accepted after the second certificate. Applications are accepted for Winter Quarter only.

If the applicant wishes to join the capstone track, he or she must secure a faculty advisor (with Graduate Faculty status) prior to application, submit a research statement as part of the Personal Statement, provide a faculty advisor’s letter of support, and provide a document from the student’s place of employment stating that the thesis does not present of conflict of interest of intellectual property.

A complete application will consist of:
- Graduate School application and fee [https://www.grad.washington.edu/applForAdmiss](https://www.grad.washington.edu/applForAdmiss)
- Two letters of recommendation describing applicant’s science, public health, engineering, or other relevant science skills and ability to complete an advanced degree
- Personal statement describing reasons for applying to the degree
- Resume
- Official scores submitted directly to University (code 4854) from the general test of the Graduate Record Exam [http://www.gre.org](http://www.gre.org)
- Unofficial transcripts from all post-secondary institutions attended (specific official transcripts will only be requested to be sent from the registration office to the UW Graduate School only once an offer of admission is made).
- If applying for the capstone project, a brief research statement and a letter of support from faculty advisor

All materials must be received by the posted deadline. See [http://depts.washington.edu/bioe/education/prospective/pharbe-bioe-info.html](http://depts.washington.edu/bioe/education/prospective/pharbe-bioe-info.html)

Graduate School Requirements
Once accepted to the degree program, a student is subject to the rules and procedures of the UW Graduate School. Please consult the Graduate School web site at [http://www.grad.washington.edu/students/masters/index.shtml](http://www.grad.washington.edu/students/masters/index.shtml)

Continuous Registration
PharBE students in the degree program hold graduate student status. As a graduate student, PharBE students are required to register for and complete credits every quarter until graduation, with the exception of Summer quarters. Students must be registered for at least 1 credit per quarter and a minimum of 5 credits if applying for financial aid. Failure to maintain continuous enrollment results in being dropped from the degree program and the Graduate School. Students who wish to reenter the degree program will need to reapply to the Graduate
School and the Department; readmission will not be automatic but decided by the Department’s Student Affairs Committee and PharBE Admissions Committee. ALL registration is handled through the UW Professional and Continuing Education office.

Students who need to arrange a leave of absence can access the Petition form online. The form and $25/quarter fee can be submitted electronically at http://www.grad.washington.edu/mygrad/student.htm as well as at http://www.grad.washington.edu/policies/general/leave.shtml which provides details about the On-Leave policy.

Students should not register for courses the quarter they wish to go on-leave. If a student does register s/he must drop all courses prior to the first day of the quarter. Even one day of enrollment in a quarter disqualifies a student for on-leave status for that quarter.

Please note that On-Leave Status is reserved for exceptional circumstances. Petitions must be submitted to the Graduate Academic Counselor and approved by the Department’s GPC at least 2 weeks before the quarter begins. On-leave requests must be approved by the department, submitted by the student, and paid by the student no later than the last day of instruction (different than the last day of the quarter) the student wishes to be considered on-leave.

**Grades**

Students must maintain a 3.0 cumulative grade point average to maintain good standing with the Graduate School and the department. Students must earn a 2.7 or better in every course.

**GNM Credit Limitation**

A limit of 12 credits earned while on GNM (Graduate Non-Matriculated) status can be counted toward the credit requirement for the degree. Please see the following website: http://www.grad.washington.edu/admissions/gnm.shtml but direct any PharBE-specific questions about GNM status to the Senior Academic Counselor.

**Registration**

All registration is administered by UW Professional and Continuing Education: http://www.outreach.washington.edu/conted/, including registration for the Bioengineering Seminar and capstone credits. In late Autumn Quarter, contact the Graduate Academic Counselor for information on Winter Bioengineering Seminar registration. Do the same in late Winter Quarter for Spring. All fees will continue to be paid to UW Professional and Continuing Education.

**Departmental Requirements**

**Coursework**

All PharBE students complete 3 certificates and the Departmental Seminar. Capstone track students should check with the Senior Academic Counselor prior to registering for Seminar credits. Non-capstone track students complete 4 credits of the Departmental Seminar.

The certificates are as follows:

**Basic Biosciences (should be completed first; also is a prerequisite to Advanced Tracks)**

Courses: Molecular and Cellular Biology I; Molecular and Cellular Biology II; Pharmaceutics I; Pharmaceutics II; Statistics and Experimental Design.

**Advanced Tracks**

Translational Pharmaceutics

Courses: Preclinical Development; Process Development; Formulation & Delivery; Clinical Development

Drug Discovery and Design

Courses: Molecular Biotechnology; Drug Discovery & Design; Molecular Targets & Drug Classes; Systems Biology & Bioinformatics
The Bioengineering Departmental Seminar (1 credit, cr/nc grade) is offered Winter and Spring quarters only, Thursdays from 12:30 – 1:20 p.m. The seminar highlights current research in Bioengineering through a series of lectures by Bioengineering faculty and students. Thesis track students complete 2 credits of Bioengineering seminar; non-thesis track students complete 4 credits of Bioengineering seminar.

(Optional) Capstone Project

Students have the option of completing a professional capstone project in either the Drug Discovery & Design or Process Development courses.

The capstone project provides an opportunity for students with limited experience in engineering and scientific research settings to hone their skills through development of a professional project or for experienced students who wish to pursue advanced coursework in an area of particular area of interest. The capstone project is arranged with, and approved by, course faculty at the beginning of the course.

Students write and submit a professional paper and at the conclusion of the course, make a formal presentation of their project to course and departmental faculty, the PHARBE program directors and fellow students.

Petitions

Students are not encouraged to petition to waive required courses or make substitutions for them. In rare cases, a student may have a compelling argument that a course should be waived or a substitution allowed. In that case, the student fills out the Petition/Waiver/Substitution form (Appendix E), and submits it to the Academic Counselor, who will take it to the Student Affairs Committee for review.

Grievances

Students are encouraged to speak first with the Graduate Academic Counselor. Together the student and Counselor will work to find a positive solution. If the student feels a suitable solution has not been found, the student may submit a petition to the Department Chair. In all cases the student has the option of following the Graduate School’s grievance guidelines: http://www.grad.washington.edu/policies/memoranda/memo33.shtml

UW Services

See the list of services available to PharBE students at http://www.pce.uw.edu/.

Time to Graduation

Non-capstone PharBE students should graduate upon completion of their second certificate.

PharBE students completing the capstone project write and submit a professional paper and at the conclusion of the course, make a formal presentation of their project to course and departmental faculty, the PHARBE program directors and fellow students. Extensions would need to be requested by letter of petition, along with a letter of concurrence from the research supervisor, to the Student Affairs Committee and should be justified by the nature of the capstone project.

All PharBE students must apply for graduation no later than the second week of the last quarter of registration. For example, if you will complete your last class in spring, apply for graduation by the second week of Spring Quarter. Applications are made online at http://www.grad.washington.edu/student/mastapp.aspx. See the graduation section below.
Timeline and Progression through the Degree Program

Please see Appendix D for the PharBE Academic Planning Sheet.

An expected timeline for NON-CAPSTONE TRACK students is as follows:

During Autumn quarter prior to year one: Apply for Graduate Non-Matriculated (GNM) Status

**Year 1:** Basic Bioscience
18 credits

**Year 2:** Complete Basic Bioscience
12 credits

**During Autumn quarter of Year 2:** Apply for Degree Status

**Year 3 & 4:**
16 Advanced Track Credits + 4 credits Bioengineering seminar

TOTAL PROGRAM CREDITS: 40

** PharBE students completing the optional capstone project are encouraged to start the capstone upon entry into the PharBE program and no later than the second year in the program. PharBE capstone students are expected to submit the professional paper the quarter of the last course in the degree program.**

Satisfactory Progress

To make satisfactory progress in the program, PharBE students should adhere to the suggested timeline for their degree track, meet minimum GPA standards (2.7 minimum per class and 3.0 GPA overall), maintain continuous enrollment, register and pay fees through UW Professional and Continuing Education and consult regularly with the Faculty Advisor and/or Academic Counselor.

Graduation

All PharBE students (thesis and non-thesis tracks) must be registered during the quarter of graduation and apply for graduation at https://www.grad.washington.edu/stsv/mastapp.aspx. The degree will be posted to the UW transcript 3-4 weeks after the end of the quarter in which it is conferred. The Registrar’s Office mails diplomas approximately 3-4 months later.

The University’s main graduation ceremony is held immediately after the end of spring quarter. August graduates are allowed to walk in the June ceremony. The web site is at www.uwgraduation.com. The Department holds its own graduation celebration, during which our BS, MME, MS, and PhD graduates are recognized and honored. The Departmental ceremony is held the evening prior to the University ceremony.

Questions regarding Graduation can be directed to Graduate Student Services, G-1 Communications, 543-5900. The Office of Commencement Exercises is at 543-2592.

Taking Leave of the Department

We ask that you leave a forwarding address, position title, and other contact information with the Academic Counselor when you graduate.
Section 6: Graduate Student Resources

Below is a non-exhaustive list of resources and information that may be useful to you during your graduate student career. Questions about any of these topics should be addressed to the Academic Counselor.

The Graduate School has compiled an excellent set of guidelines to describe what the graduate student and advisor can expect of one another and general ‘guidelines for good practice’ in graduate education. The sections are divided by Professionalism and Ethics, Teaching, and Mentoring. See http://www.grad.washington.edu/mentoring/good-practice/

The Department has several committees with seats reserved for graduate students. We encourage interested students to get involved with one of the following committees: Student Affairs, Curriculum, and the Student Advisory Board. See the Academic Counselor for details or to express interest in serving on a committee.

Bioengineering students have access to two Departmental computer labs in addition to all UW computer labs. See http://depts.washington.edu/bioe/student-life/student-resources/


To assist you in your preparation for post-graduate life, we encourage you to join the UW Alumni Association http://www.washington.edu/alumni/.

Funding is a necessary component of life as a graduate Research Assistant. Early-stage students are encouraged to apply for the NSF and/or NDSEG fellowships. Post-Qualifying Exam students are encouraged to apply for traineeships when slots are available (look for emails from the Academic Counselor). Post-General Exam students are encouraged to apply for the NIH Kirschstein F31 predoctoral fellowship. Other funding opportunities are posted on the Graduate Funding and Information Services website at http://commons.lib.washington.edu/services/gifs. If a faculty advisor informs the PhD student that funding is no longer available, the student should contact the Graduate Academic Counselor immediately. The Department does not have travel funds but students may apply to the Graduate and Professional Student Senate (GPSS), see http://www.gpss.washington.edu/. Very limited travel funds are sometimes available from the Graduate School; contact the Graduate Academic Counselor for an update.

Special note about fellowships: MS or PhD students who receive an NSF, NDSEG or other full fellowship will receive a 10% stipend supplement for the duration of the award. ‘Full fellowship’ is defined as a non-UW financial award that provides at least 75% of the tuition costs, at least 75% of the health insurance costs, and at least 75% of the BioE monthly stipend. The faculty advisor will provide (from a non-federal source) funding to ensure that the student’s tuition, benefits, and stipend meet the BioE rates in addition to providing a 10% supplement to the stipend. The 10% supplement is calculated based on the current BioE stipend rate. When the award ends, the student returns to the BioE stipend rate.

Students funded as Research Assistants, Teaching Assistants, or Trainees are covered by the UW/UAW Academic Student Employee union contract: http://www.washington.edu/admin/hr/laboreel/contracts/uaw/addons/index.html and have access to the Graduate Appointee Insurance Program: http://www.washington.edu/admin/hr/benefits/insure/gaip/index.html Review these websites then contact the Academic Counselor if there are any questions.
Appendix A:
Expected Background for the Graduate Program
(For students admitted Autumn 2006 or later)

Starting in Autumn 2006, students admitted to the Bioengineering graduate program are expected to be knowledgeable of the topics listed below PRIOR to entering the graduate program. These requirements also apply to students admitted Autumn 2005 who choose to follow the 2006-2011 curriculum. Students from 2012 and later are encouraged, but not required, to be knowledgeable of the topics listed below prior to entering the graduate program. Students are responsible for ensuring they have adequately learned the prerequisites for their lab and the courses they plan to take during their graduate program.

Well-qualified students may be admitted to the graduate program missing some background; however, they will be expected to be knowledgeable of these topics prior to entering the graduate program.

Applicants can complete missing background topics in classroom and/or self-study format.

- Algebra, linear algebra, trigonometry
- Ordinary differential equations
- Signal analysis
- Probability theory and statistics
- Programming
- Electrical engineering and physics
- Chemistry (inorganic, organic, biochemistry)
- Material science
- Rate processes and mathematics
- Cellular biology
Appendix B:  
**PhD Planning Sheet**  
(For students admitted Autumn 2012 or later)

### CORE REQUIREMENTS:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Course</th>
<th>Quarter</th>
<th>Credits</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOEN 599 (530)</td>
<td>Lit Analysis</td>
<td>AUT</td>
<td>2 (CR/NC)</td>
<td></td>
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<tr>
<td>BIOEN 599 (531)</td>
<td>Grant Writing</td>
<td>WIN</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>BIOEN 599 (532)</td>
<td>Professional Development</td>
<td>SPR</td>
<td>1 (CR/NC)</td>
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</table>

### ADDITIONAL REQUIREMENTS: Biostatistics (minimum 2.0 credits)

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Course</th>
<th>Quarter</th>
<th>Credits</th>
<th>Grade</th>
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</thead>
<tbody>
<tr>
<td>BIOSTAT 517, 524; STAT 502, 504, 512; BIOEN 599 Bioengineering Statistics; or UCONJ 510</td>
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### ADDITIONAL REQUIREMENTS: 25 cr. of 400 or 500-level, BIOEN theme-related and research-related electives. 9 cr. must have BIOEN prefix. Elective must be PI-approved.

1) 18 graded 400 or 500-level credits must be taken within 4 of 5 BIOEN themes.

1-a) Of the 4 themes, 9 credits must be “advanced credit” taken in one of the themes.

1-b) In the three remaining themes, students must complete 9 credits (advanced or basic). Students must complete a minimum of 3 credits in each of the three remaining themes.
2) 7 additional electives credits are required at the 400 or 500-level, but do not have to be research related. 3 of these credits can be CR/NC.

<table>
<thead>
<tr>
<th>Courses</th>
<th>Quarter</th>
<th>Credits</th>
<th>Theme</th>
<th>Advanced?</th>
<th>Grade</th>
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<tbody>
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APPROVED COURSE SUBSTITUTIONS (none allowed for core requirements):

____________________________________________________________________

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COURSE CREDITS:

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<tr>
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<th>Credits 400+</th>
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<tr>
<td>Course</td>
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<th>B</th>
<th>Credits 500+</th>
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<td>Course</td>
<td>Credit</td>
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Total UW Graded Credits Column B Must Be Greater Than Or Equal to 18 Before Scheduling The General Exam: __________

TOTAL CREDITS COLUMNS A & B MUST BE GREATER THAN OR EQUAL TO 33: __________

RESEARCH CREDITS:

<table>
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<tr>
<th>A</th>
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<tr>
<td>Course</td>
<td>Credit</td>
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<th>B</th>
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<td>Course</td>
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TOTAL CREDITS COLUMN B MUST BE GREATER THAN OR EQUAL TO 27 over at least 3 quarters: __________

TOTAL CREDITS EARNED MUST BE GREATER THAN OR EQUAL TO 90 (60 credits with a previous masters): __________

Required TAship
Course: ________________  Quarter: ________________
### Appendix B:
**PhD Planning Sheet**
(For students admitted Autumn 2006 - Autumn 2011)

**CORE REQUIREMENTS:**

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<thead>
<tr>
<th>Requirement</th>
<th>Course</th>
<th>Quarter</th>
<th>Credits</th>
<th>Grade</th>
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<td>BIOEN 510</td>
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<td>BIOEN 501</td>
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<td>BIOEN 502</td>
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<td>BIOEN 503</td>
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**ADDITIONAL REQUIREMENTS:**

<table>
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<tr>
<th>Requirement</th>
<th>Course</th>
<th>Quarter</th>
<th>Credits</th>
<th>Grade</th>
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<tbody>
<tr>
<td>Biostatistics (BIOST 511 or BIOEN 599: Bioengineering Statistics)</td>
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<tr>
<td>16 Bioengineering elective credits (must be 400- or 500-level; must be chosen in consultation with advisor)</td>
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**APPROVED COURSE SUBSTITUTIONS** (none allowed for core requirements):
COURSE CREDITS:

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
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<tbody>
<tr>
<td>Credits 400+</td>
<td>Credits 500+</td>
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<tr>
<th>Course</th>
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</table>

Total UW Graded Credits Column B Must Be Greater Than Or Equal to 18 Before Scheduling The General Exam: __________

RESEARCH CREDITS:

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
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<tbody>
<tr>
<td>Credits 600+</td>
<td>Credits 800+</td>
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<table>
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<tr>
<th>Course</th>
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<th>Grade</th>
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TOTAL CREDITS COLUMN B MUST BE GREATER THAN OR EQUAL TO 33: __________

Required TAship
Course:
Quarter:
Appendix C:
MS Planning Sheet (PTC/BPS Tracks)
(For students admitted Autumn 2012 or later)

☐ **CORE REQUIREMENTS-BSP Track (4 credits Total):**

<table>
<thead>
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<th>Requirement</th>
<th>Course</th>
<th>Quarter</th>
<th>Credits</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOEN 599 (530)</td>
<td>Lit Analysis</td>
<td>AUT</td>
<td>2</td>
<td></td>
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<tr>
<td>BIOEN 599 (531)</td>
<td>Grant Writing</td>
<td>WIN</td>
<td>2</td>
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OR,

☐ **CORE REQUIREMENTS-PTC Track (4 credits Total):**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Course</th>
<th>Quarter</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BIOEN 504 (SPR),</td>
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<td>4</td>
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<tr>
<td>BIOEN 505 (AUT)</td>
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</table>

**ADDITIONAL REQUIREMENTS: Biostatistics (minimum 2.0 credits)**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Course</th>
<th>Quarter</th>
<th>Credits</th>
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<tbody>
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<td>BIOSTAT 517, 524;</td>
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<tr>
<td>STAT 502, 504, 512;</td>
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<tr>
<td>BIOEN 599</td>
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<tr>
<td>Bioengineering</td>
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<tr>
<td>Statistics; or UCONJ 510</td>
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</tbody>
</table>

**ADDITIONAL REQUIREMENTS: 19 cr. of 400 or 500-level, BIOEN theme-related and research-related electives. 9 cr. must have BIOEN prefix. Elective must be PI-approved.**

3) 12 graded 400 or 500-level credits must be taken within 3 of 5 BIOEN themes.

1-a) Of the 3 themes, 6 credits must be “advanced credit” taken in one of the themes.

<table>
<thead>
<tr>
<th>Courses</th>
<th>Quarter</th>
<th>Credits</th>
<th>Theme</th>
<th>Advanced?</th>
<th>Grade</th>
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<tbody>
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</table>

1-b) In the two of the remaining 4 themes, students must complete 6 credits (advanced or basic). Students must complete a minimum of 3 credits in each of the two remaining themes.

<table>
<thead>
<tr>
<th>Courses</th>
<th>Quarter</th>
<th>Credits</th>
<th>Theme</th>
<th>Advanced?</th>
<th>Grade</th>
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4) 7 additional electives credits are required at the 400 or 500-level, but do not have to be research related. 2 of these credits can be CR/NC.

<table>
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<tr>
<th>Courses</th>
<th>Quarter</th>
<th>Credits</th>
<th>Theme</th>
<th>Advanced?</th>
<th>Grade</th>
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</table>

APPROVED COURSE SUBSTITUTIONS (none allowed for core requirements):

__________________________________________
__________________________________________
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__________________________________________
COURSE CREDITS:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
<th>Grade</th>
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</table>

Total UW Graded Credits Column B Must Be Greater Than Or Equal to 18: __________

TOTAL CREDITS COLUMNS A & B MUST BE GREATER THAN OR EQUAL TO 27: __________

RESEARCH CREDITS:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
<th>Grade</th>
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<tbody>
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</tbody>
</table>

TOTAL CREDITS COLUMN B MUST BE GREATER THAN OR EQUAL TO 9: __________

TOTAL CREDITS EARNED MUST BE GREATER THAN OR EQUAL TO 36: __________
Appendix C:  
MS Planning Sheet  
(For students admitted Autumn 2006 – Autumn 2011)

CORE REQUIREMENTS:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Course</th>
<th>Quarter</th>
<th>Credits</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOEN 510</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>BIOEN 501</td>
<td></td>
<td></td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>BIOEN 502</td>
<td></td>
<td></td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>BIOEN 503</td>
<td></td>
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<td>4</td>
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</tbody>
</table>

ADDITIONAL REQUIREMENTS:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biostatistics (BIOST 511 or BIOEN 599: Bioengineering Statistics)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>10 Bioengineering elective credits (must be 400- or 500-level; must be chosen in consultation with advisor)</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

APPROVED COURSE SUBSTITUTIONS (none allowed for core requirements):  
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
## COURSE CREDITS:

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credits 400+</td>
<td>Credits 500+</td>
</tr>
<tr>
<td>Course</td>
<td>Credit</td>
</tr>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

Total UW Graded Credits Column B Must Be Greater Than Or Equal to 18: __________

TOTAL CREDITS COLUMNS A & B MUST BE GREATER THAN OR EQUAL TO 27: __________

## RESEARCH CREDITS:

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credits 600+</td>
<td>Credits 700+</td>
</tr>
<tr>
<td>Course</td>
<td>Credit</td>
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</tbody>
</table>

TOTAL CREDITS COLUMN B MUST BE GREATER THAN OR EQUAL TO 9: __________

TOTAL CREDITS EARNED MUST BE GREATER THAN OR EQUAL TO 36: __________

**Required TAship**

Course: 
Quarter:
# Appendix D

**Master’s Pharmaceutical Bioengineering (PHARBE) Planning Sheet**

**Non-Capstone Option**

Name: ______________  
Quarter/Year Admitted to Degree: ______

Outreach ID: __________  
Quarter/Year Admitted to GNM: ______

---

## Year 1 (20 Credits Total) GNM? Y/N

### Basic Bioscience

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Enter Year Taken</th>
<th>Grade (Credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molecular &amp; Cellular Biology I</td>
<td>PharBE 500 Win Quarter</td>
<td>(4)</td>
</tr>
<tr>
<td>Molecular &amp; Cellular Biology II</td>
<td>PharBE 501 Spr Quarter</td>
<td>(4)</td>
</tr>
<tr>
<td>General Pharmaceutics I</td>
<td>PharBE 502 Fall Quarter</td>
<td>(4)</td>
</tr>
<tr>
<td>General Pharmaceutics II</td>
<td>PharBE 503 Win Quarter</td>
<td>(4)</td>
</tr>
<tr>
<td>Statistics and Experimental Design</td>
<td>BIOEN 599 Spring Quarter</td>
<td>(4)</td>
</tr>
</tbody>
</table>

**Total Basic Bioscience credits**: (16)

---

## ADVANCED TRACK (CHOOSE ONE) =

2 of each; 3 in one and one in the other; all 4 classes in one advanced track and 0 in the other

### Year 2 (16 Credits Total)

**Drug Discovery Certificate Mon/Wed**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Enter Year Taken</th>
<th>Grade (Credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molecular Biotechnology</td>
<td>PharBE 520 Aut Quarter</td>
<td>(4)</td>
</tr>
<tr>
<td>Drug Discovery &amp; Design</td>
<td>PharBE 521 Win Quarter</td>
<td>(4)</td>
</tr>
<tr>
<td>Molecular Targets &amp; Drug Classes</td>
<td>PharBE 522 Spr Quarter</td>
<td>(4)</td>
</tr>
<tr>
<td>Systems Biology &amp; Bioinformatics</td>
<td>PharBE 523 Aut Quarter</td>
<td>(4)</td>
</tr>
</tbody>
</table>

**Total Credits in Drug Discovery**: ______

---

### Year 2/Year 3 (16 Credits Total)

**Translational Pharmaceutics Certificate Tues/Thurs**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Enter Year Taken</th>
<th>Grade (Credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preclinical Development</td>
<td>PHARBE 510 Aut Quarter</td>
<td>(4)</td>
</tr>
<tr>
<td>Process Development</td>
<td>PHARBE 511 Win Quarter</td>
<td>(4)</td>
</tr>
<tr>
<td>Formulation &amp; Delivery</td>
<td>PHARBE 512 Spr Quarter</td>
<td>(4)</td>
</tr>
<tr>
<td>Clinical Development</td>
<td>PHARBE 513 Aut Quarter</td>
<td>(4)</td>
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</tbody>
</table>

**Total Credits in Translational Pharmaceutics**: ______

---

## Bioengineering Department Seminar (min. 4 credits)

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Enter Quarter &amp; Year Taken</th>
<th>Grade (Credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOEN 509</td>
<td>Win [ ] Spr [ ]</td>
<td></td>
</tr>
<tr>
<td>BIOEN 509</td>
<td>Win [ ] Spr [ ]</td>
<td></td>
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</tbody>
</table>
Any grades lower than 2.7? Yes No

Cumulative GPA is greater than or equal to 3.0? Yes No

**Note:** A min of 24 credits **MUST** be earned after acceptance to the degree. A max of 12 GNM credits may be applied to the degree.**
A student should request a **waiver** if he or she has prior coursework (undergraduate or graduate) that fills the requirement. For Ph.D. students whose curriculum is Autumn 2012 or later, only credits from the “7 additional” electives credits can be waived with coursework from a prior M.S. degree. A student should request a **substitution** if he or she seeks permission to substitute another program course for a required course. A student should request a **petition** only after receiving instruction and approval from the Academic Counselor. Depending on the request, the petition may require a separate document, written in letter format. Extenuating circumstances in which a student may petition may include (but are not limited to) requesting part-time Graduate Student Status, requesting on-leave status, or to request individual review relating to any Graduate or Department requirements. Be sure to submit a separate form for each waiver, substitution, or petition. Waivers, substitutions, and petitions are subject to the rulings of the SAC and are not guaranteed.

**Student’s Name:** __________________________  **Date Requested:** ______

What degree is the student pursuing?  
☐ MS  ☐ PhD  ☐ PharB

Is this a:  
☐ Petition?  ☐ Waiver?  ☐ Substitution?

Course, category, and/or Academic Quarter(s) for which waiver/substitution is requested:

________________________________________

Course(s) constituting basis for waiver/substitution (if applicable):

<table>
<thead>
<tr>
<th>Course # &amp; Title</th>
<th>Date</th>
<th>Credit</th>
<th>Grade</th>
<th>Where Taken*</th>
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* Please attach supporting documentation such as transcripts and syllabi if taken elsewhere.

Rationale for request (please fill out thoroughly for a “petition” request. Include a stapled attachment to this document if you run out of space): ________________________________________________

________________________________________

________________________________________

Student’s Signature: __________________________

________________________________________

First Year or Research Advisor Signature  **Date**

________________________________________

Instructor Signature*  **Date**

*Instructor signature indicates recommendation for approval. Instructor signature required for petitions of Biotransport, Medical Measurements, and Bioengineering Principles of Physiology I & II.

**Student Affairs Committee** approved substitution/waiver/petition on___________________, 20____.

☐ Yes  ☐ No

**GPC signature:** ________________________________________________
APPENDIX F:
Satisfactory Progress/Scholarship

Satisfactory Progress
The Graduate Program Coordinator (GPC), the Student Affairs Committee, and the Supervisory Committee share responsibility for monitoring a student’s progress.

Academic progress is monitored by the GPC, who reviews quarterly schedules, grades and cumulative GPA.

Progress through the program is monitored by the Student Affairs Committee, who will determine if a student is meeting defined deadlines for qualifying, general, and final exams (or thesis defense, for Master’s students).

The research advisor and Supervisory Committee monitor research progress. The advisor will evaluate research progress every quarter for Master’s students and once a year for PhD students. The advisor and Supervisory Committee also determine whether any academic misconduct has taken place. If the committee finds that the student’s research progress is unsatisfactory, it will recommend to the Student Affairs Committee that the student be warned or placed on academic probation. The Student Affairs Committee will review the recommendation after consulting with the student and advisor.

If it is determined that the student has made unsatisfactory progress, the GPC sends a letter to the Graduate School explaining the department’s recommendation. The letter clearly details the problems and the steps the student must take to keep from being dropped. Copies go to the student, the advisor, the Graduate Academic Counselor and the supervisory committee.

Scholarship
Graduate students must maintain at least a 3.0 cumulative GPA. (A minimum of 2.7 must be earned in each class counting for the degree.) Each quarter the Graduate School sends the GPC a list of any students whose GPAs have fallen below 3.0. The GPC must recommend an action to the Graduate School (see below). The student will be given specific written recommendations to help him or her regain acceptable academic performance and stature, and academic scholarship will be reviewed at the end of each subsequent quarter until the student's performance is restored to acceptable levels.

Actions
Possible actions that can be taken by the department are:

1. **No action.** This might be appropriate for a student whose cumulative GPA is below 3.0 for the first time. Nothing appears on the student’s record.

2. **Warning.** This might be applied to a student whose cumulative GPA is below 3.0 for a second quarter. Nothing appears on the student’s record.

3. **Probation.** The department may place a student on academic probation if the cumulative or quarterly GPA drops below 3.0, if the student withdraws or departs significantly from the required course work, or if there is unsatisfactory research progress. A prior warning is not required to place someone on probation. Probation action appears on the student’s permanent Graduate School record.

4. **Final probation.** A student will not be allowed to be on warning and probation for more than 3 quarters (either consecutively or in total). If, at the end of the third quarter, the student is still deficient, the student will be placed on final probation within the first two weeks of the following quarter. If the deficiency is not corrected by the end of the quarter, the student will be dropped from the program.

If, at the end of any probationary or final probationary quarter, the student has corrected any deficiencies to the satisfaction of the Student Affairs Committee and Supervisory Committee, the student will be returned to normal academic standing. Once a student has been on final probation, however, any further deficiencies result in being dropped from the program.
APPENDIX G: 
Supervisory Committee
(Submit original to Graduate Academic counselor for Student Affairs Committee review)

Name: ________________________________  Student #: ____________________

Today’s Date: ________________________________  □  MS  △ PhD

Dates: Quarter of Entry to BioE:  ________________________________

Anticipated Quarter of General Exam: ________________________________

Supervisory Committee (all members must print and initial):

Chair: ____________________  Initials: _______  Dept: _______  Email: ____________________

Member: ____________________  Initials: _______  Dept: _______  Email: ____________________

Member: ____________________  Initials: _______  Dept: _______  Email: ____________________

Member: ____________________  Initials: _______  Dept: _______  Email: ____________________

Member: ____________________  Initials: _______  Dept: _______  Email: ____________________

The GSR confirms that the GSR is clear of any conflicts of interest (as defined below) and that no such conflicts of interest, or appearance of conflicts of interest, exist.

GSR: ____________________  Initials: _______  Dept: _______  Email: ____________________

Brief description of dissertation/thesis project:

________________________________________________________________________
________________________________________________________________________

For Student Affairs Committee:  Approved  Not approved
Comments: ________________________________

GPC Signature: ________________________________  Date: __________________

For the master’s supervisory committee:
• The committee must be established no later than the end of Autumn Quarter of the second year.
• The committee must consist of a minimum of 2 members; all appointed members are voting members.
• At least 1 member must be core BIOE faculty.
• At minimum, half of the members must be Graduate Faculty: http://www.grad.washington.edu/gradfac/

For the doctoral supervisory committee:
• The committee must be established no later than the end of Autumn Quarter of the third year (and at least 4 months before the request for the General Exam is submitted to the Graduate School).
• The committee must consist of a minimum of 4 members; all appointed members are voting members.
• At least 2 members must be on the list of core BIOE faculty.
• At least 3 voting members (including the Chair and the GSR) must be members of the Graduate Faculty with an endorsement to chair doctoral committees: http://www.grad.washington.edu/gradfac/
• The student is responsible for securing a Graduate School Representative (GSR). A GSR cannot a) have a primary or joint appointment in the student’s home department OR b) have a primary or joint appointment in the chair’s home department or c) have a conflict of interest with the student or anyone on the committee.
• Conflicts of interest include (but are not limited to): budgetary relationships, personal relationships, or research and/or publication relationships between the GSR and either the student or the committee chair.
APPENDIX H:
Graduate Student Plan

Submit original to academic counselor for Student Affairs Committee. The Graduate Student Plan must be approved no later than one quarter after the Supervisory Committee is established and no later than one quarter before the General Exam.

Name: ___________________________ Student #: ___________________________

Program: □ MS □ PhD □ PharBE Curriculum: □ Aut ’06-’12 □ Aut ’12-present

Dates:
Entry: _______ Anticipated Completion: _______ Today’s Date: _______

Supervisory Committee:
Chair: _______________ Initials: _______ (GSR not required for MS)
GSR: _______________ Initials: _______
Other: _______________ Initials: _______
Other: _______________ Initials: _______
Other: _______________ Initials: _______

Research Theme: __________________________

Subject of Thesis/Dissertation:

If you are earning a PhD, do you have a prior Master’s degree? □ Yes □ No

Please list any approved waivers or substitutions:

Planned Coursework -- please insert the appropriate planning sheet:

- Appendix B ..................................................PhD Planning Sheet
  - For students admitted Aut’ 06 – Aut’ 12
  - For students admitted Aut’ 12 and later

- Appendix C ..................................................MS Planning Sheet
  - For students admitted Aut’ 06 – Aut’ 12
  - For students admitted Aut’ 12 and later

For Student Affairs Committee:

Progress: □ Satisfactory □ Unsatisfactory
Plan: □ Approved □ Not approved

GPC Signature: ___________________________ Date: ___________________________
Appendix I:
REQUEST FOR GENERAL EXAMINATION

Date: ___________________________ Department: Bioengineering

Student Name ___________________________ Student Number: __________

The exam is scheduled for:

Time: ___________________________

Day: ___________________________

Date: ___________________________

Location: ___________________________

Will the exam include audio/video conferencing?
Yes ☐ No ☒

Who will participate via audio/video conference?

Student: ________ Member(s) ________

If the student will participate via audio/video conference, a proctor letter must be attached to this request form.

Place asterisk (*) next to name of member(s) listed below who will participate via audio/video conference.

All members of the supervisory committee must sign this form; however, the exam may be held with the minimum number of members specified in Graduate School Memorandum No. 13.

(E-mails and faxed signatures are acceptable if attached to this form.)

Supervisory Committee Names (Typed)   Signatures

(Chairperson)

(Graduate School Representative)

The original form MUST be submitted to the Graduate Academic Counselor at least 1 week before the date of the General Exam.
Appendix J:
REQUEST FOR FINAL EXAMINATION

Date: ___________________________  Department:  **Bioengineering**

Reading Committee members have read an entire draft of the doctoral dissertation written by:

Student Name: ______________________  Student Number: ____________

Entitled: ____________________________________________

The exam is scheduled for:

**Will the exam include audio/video conferencing?**  
- Yes [ ]  - No [ ]

**Who will participate via audio/video conference?**

**Student:** [ ]  **Member(s):** [ ]

If the student will participate via audio/video conference, a proctor letter **must be attached to this request form.**

**Place asterisk (*) next to name of member(s) listed below who will participate via audio/video conference.**

<table>
<thead>
<tr>
<th>Supervisory Committee Names (Printed)</th>
<th>Signatures</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Chair)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>(Graduate School Representative)</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

All members of the supervisory committee must sign this form, fax a signature, or provide e-mail confirmations (to be attached to this form in the order the names appear below); however, the exam may be held with the minimum number of members specified in Graduate School Memorandum No. 13. *E-mails and faxed signatures must confirm the time, date and location of the exam or will not be considered a valid confirmation.*

The original form **MUST be submitted to the Graduate Academic Counselor at least 3 weeks before the date of the Final Exam.**
Appendix K: REQUEST FOR MASTER’S DEGREE EXAM

Date: ___________________________________________  Department: Bioengineering

Committee members have read an entire draft of the master’s thesis written by:

Student Name: ________________________________  Student Number: ______________

Entitled: ______________________________________

The exam is scheduled for:

Time: _________________________________________

Day: _________________________________________

Date: _________________________________________

Location: _____________________________________

Will the exam include audio/video conferencing?

Yes ☐  No ☐

Who will participate via audio/video conference?

Student: _______  Member(s) _______

If the student will participate via audio/video conference, a proctor letter must be attached to this request form.

Place asterisk (*) next to name of member(s) listed below who will participate via audio/video conference.

Supervisory Committee Names (Printed)  Signatures

(Chair)

Member

Member (Optional)

Member (Optional)

The original form MUST be submitted to the Graduate Academic Counselor at least 2 weeks before the date of the Master’s Exam.