

BIOLOGICAL AND AGRICULTURAL ENGINEERING

Graduate Program Manual
March 2005

Graduate Program Manual for Biological and Agricultural Engineering

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Graduate Program Manual for Biological Systems Engineering

Objective of This Manual

The objective of this manual is to provide information and guidelines to students and faculty members regarding engineering graduate studies at the Department of Biological Systems Engineering. This manual is organized in several sections covering a variety of topics from application to the departmental graduate program, to making the transition to Washington State University, to responsibilities of students with graduate research assistantships, to academics, to annual evaluation, and to overall program requirements and regulations.

Students preparing to join the program as well as current students should carefully read these guidelines and be aware of regulations that apply during the course of their studies in the department. The Manual will be available on the BAE web page. Because the guidelines will change over time Both students and faculty members are encouraged to provide input and feedback to improve the clarity, quality, and usefulness of these guidelines.

Our best wishes for the success of all our graduate students.

Expectations for PhD and Masters Students

Graduate School perspective

Role of advisors

WSU's Graduate Student code details the expectations of Faculty Advisors.

High quality graduate programs are those with notable faculty and systems for advising graduate students. Graduate students need sound advice during their early experiences in graduate school. Graduate students deserve guidance from faculty whose interest goes beyond the mere advisor-director role to one of teacher and advisor. Departments and programs are responsible for encouraging effective advising and for insuring that graduate students receive advice during the course of their graduate studies.

An advisor is a faculty person who assists scholarly development, contributes to intellectual stimulation, and fosters professionally enriching relationships with graduate students. Looked at in slightly different light, a faculty advisor is a peer-to-be, one who encourages and supports independent development, one who nurtures a rapid transition from graduate student to colleague through insightful guidance, trust, and mutual respect.

You should expect that advisors will interact with them on a regular basis, providing the guidance, advice, and intellectual challenge necessary to complete their degree programs. You may also change advisors at any time, without fear of reprisal, but there may be implications in terms of financial support.

You should expect that your advisor will:

- 1. Interact in a professional and civil manner consistent with University policies governing nondiscrimination and sexual harassment*
- 2. Create an ethos of collegiality in classroom, laboratory, or studio supervisory relations that stimulates and encourages you to learn creatively and independently.*
- 3. Develop clear understandings about specific research expectations and responsibilities, including timelines for completion of theses or dissertations*

4. *Provide verbal or written comments and evaluations of your work in a timely manner.*
5. *Discuss laboratory, studio, or departmental authorship policy with you in advance of entering into collaborative projects.*
6. *Acknowledge your contributions to research presented at conferences, in professional publications, or in applications for copyrights and patents.*
7. *Provide explicit and well-publicized dismissal and appeal procedures.*
8. *Prevent faculty rivalries from interfering with their duties as advisors, committee members, instructors, or colleagues.*
9. *Assiduously avoid impeding your progress toward a degree because of benefit from the your proficiency as a teaching or research assistant.*
10. *Excuse themselves from serving on graduate committees when there is an amorous, familial or other relationship between the faculty member and the student that could result in a conflict of interest.*
11. *Refrain from requesting you to do personal work (eg., mowing lawns, baby-sitting, typing papers) without appropriate agreement and compensation.*

Role of the Graduate Student

Graduate students at WSU shall assume the following responsibilities:

1. *To conduct themselves in a mature, professional, and civil manner in all interactions with faculty, staff, other graduate or professional students, and undergraduates.*
2. *To learn the Graduate School's policies and procedures (see Graduate School Policies and Procedures manual; <http://www.wsu.edu:8080/~gradsch/polproc.html>), specific program requirements as delineated by academic departments, and standards of performance established by faculty and their respective professional groups.*
3. *To maintain integrity in learning, independent scholarship, and professional development.*
4. *To communicate regularly with faculty advisors on matters related to progress within their graduate programs.*
5. *To acknowledge contributions of faculty advisors and others in work leading to conference presentations and publications.*
6. *To respect time constraints of faculty members.*
7. *To respect the responsibilities of faculty advisors to evaluate your coursework and overall academic progress. Faculty, in turn, are responsible for monitoring the validity and quality of your research, teaching, and other scholarly activities.*
8. *To fulfill, in a timely manner, the requirements of their programs, as prescribed by departments or programs.*
9. *To assume the initiative in selecting committee members for thesis, dissertation, and qualifying exams.*
10. *To contribute positively to a collegial environment within the department or program.*
11. *To adhere to federal, state, University, and departmental rules and regulations regarding the use of animals, human subjects, dangerous and hazardous chemicals, biohazardous and radioactive materials or radiation in research.*

The Application Process

The Role of the Graduate School

The graduate school at Washington State University administers the application process and determines if an applicant is accepted to the graduate school. The graduate school has specific academic and financial requirements for admission, as well as deadline dates for admission into a particular semester.

The graduate school looks at three measures of your past academic performance; your grade point average in your undergraduate or Masters program, your TOFEL score, and the recommendation from the degree program. Graduate school requires a minimum grade-point average of 3.0 (on a 4.0 scale), a minimum TOFEL score of 550 (written test) or 213 (computer test), and a positive recommendation for admission from the degree program.

The graduate school also requires that you provide evidence that you have sufficient financial resources to pay the cost of tuition and supplies required to complete your degree. For our students, the three most common sources of funds are personal/family funds, scholarships and grants, and research stipends.

The Role of the Biological and Agricultural Engineering Program

The BAE Program provides the graduate school a recommendation of the degree program concerning admission, and on a case to case basis, a pledge to provide financial support for the student.

When reviewing an application, the graduate committee considers two issues. First, does the applicant have sufficient academic background to complete the Masters or Ph.D. program in Biological Systems Engineering? Secondly, is there a faculty member who is willing to provide a stipend for the applicant out of his/her research funds?

The degree program makes its recommendation based on the applicant's documentation sent to the degree program by the graduate school. If the applicant would like to expedite the review by the degree program, they may send a parallel set of documentation directly to the Biological and Agricultural Engineering Program. However, and applicant will not be reviewed by the graduate committee until the applicant has applied to the graduate school.

Application Checklist

1. Download and complete the graduate school application form from the web site <http://www.gradsch.wsu.edu/howtoapply.htm>
2. Submit the Graduate School Application Form to the Washington State University Graduate School
3. Download the BAE reference evaluation form from <http://www.bsyse.wsu.edu/Main/Programs/Graduate/Engineering/rec%20letter.pdf> and ask three references to fill out the form and send it along with a letter of reference to The Biological and Agricultural Engineering Program
4. Send a Statement of Intent to The Graduate School (an additional copy may be sent to the BAE Program)
5. Request copy of transcripts from previous academic institutions to be sent directly to The Graduate School (copies may also be sent to the BAE Program)
6. If required, request the results of your latest TOEFL score be sent to the Graduate School
7. If required, send evidence of financial support the Graduate School

Timeline for applications

Deadline dates for applications to the Graduate School are at least 10 months before the start of the semester. Current deadline dates can be found at: <http://www.gradsch.wsu.edu/dates.htm> .

How to determine the status of an application

The BAE graduate committee will meet to consider applications once we received notice that The Graduate School application form has been received by the Graduate School, and we have the following documentation: three letters of reference and associated reference evaluation forms, a copy of your transcripts, and your statement of purpose.

The BAE Program will inform you of our recommendation concerning your application to graduate school at WSU, and if you requested financial support in terms of a graduate research stipend, we will also inform you if a faculty member is interested in providing a stipend. You will receive official notification concerning your application from The Graduate School.

You can check on the status of your application at the:

<http://www.gradsch.wsu.edu/howtoapply.htm> web site and choosing "Check my Admission Status" link along the left side of the page. You will need your WSU ID to gain entrance to the admission status area. Inquiries regarding your application can be sent to the BAE Program at bsyse@wsu.edu.

Making the Transition to WSU

Visa issues

Some international students will need a visa to study in the United States. To obtain a visa, you will need one of two forms, an I-20 or DS-2019. The form, along with your passport and other documentation, is taken to a consultant or embassy in your country. The visa office in the consultant or embassy will make the decision concerning issuing a visa to you. Previous international students have shared that a common reason for a visa denial is that the visa official wanted documentation (immediate family remaining in country or a position waiting for their return) that the student would return to their home country once they have obtained the degree.

Which form you will receive depends on your financial support:

1. If you will be receiving financial support from WSU, the Graduate School will fill out and send an I-20 form to you.
2. If you will be receiving support from a different agency than WSU, the agency will send you a DS-2019 form.
3. If you have satisfied the Graduate School at WSU that you have sufficient personal financial resources to complete a graduate degree at WSU, the Graduate School will fill out and send you an I-20 form.

Moving to Pullman

Living in the State of Washington

Pullman is located about 7 miles from the Idaho State line, and you might be interested in living in Idaho. If the university is paying you a salary from any source (either from a grant or from state money) then you must qualify for in-state tuition by living in the State of Washington. Neither grant appointments nor state appointments will pay out-of-state tuition. It is still a good idea to live in the state even if you are not paid a salary to ensure that you can take advantage of an opportunity to pay in-state tuition if it comes along.

Students who are citizens of the United States must become residents of the State of Washington within the first year of their studies or they will pay non-resident tuition.

Housing

There are three common housing options in Pullman; on campus dormitory rooms, on campus apartments, and off campus housing.

More information about on-campus housing can be found at:

http://www.livingat.wsu.edu/hdrl/FutureStudents/FS_Main.htm . Information and help identifying off campus housing can be found at the Pullman Chamber of Commerce <http://www.pullmanchamber.com/>

Local documents

If you have never worked for the university, you will need three documents before you can be paid:

1. **Social Security Number / Card:** If you do not have a Social Security Number, the university cannot pay you until you have applied for a number. You need to apply for a number as soon as possible because the Social Security office has very limited hours. If you are not a citizen of the United States, the first thing you need to do is to get a letter from the department explaining that you are being paid. Take with you the following four items to the Social Security office:
 1. The letter
 2. Your passport
 3. The I-94 form in your passport
 4. Either the I-20 or the DS2019, depending on what kind of visa you have.

Social Security typically sends a representative to the campus or to its office in Moscow, Idaho only a few days a year. On all other days, you will have to go to Lewiston, Idaho (the address is on the letter), which is 45 miles south of Pullman. No buses travel between Pullman and Lewiston.

It is crucial that you obtain a receipt when you apply for a Social Security card. We can get you on the payroll with the receipt until the card itself arrives. Once the card arrives, sign it and bring it to the main office so we can photocopy it for the Payroll Office.

2. **I-9:** All new employees to the university must complete an I-9 form (and sign it) showing that they are eligible for employment in the United States. In order to complete the form, you must have a document proving your identity (a passport for non-citizens or usually driver's license for citizens) and a document showing that you can work in the United States (a DS2019 or I-20 for non-citizens or an original Social Security card for citizens). All documents must be originals.
3. **W-4.** If you are a new employee, you must complete a W-4 form for tax purposes.

The administrative office will help you complete these forms.

Drivers license

To drive a vehicle in the United States, you must have a valid US or International drivers license.

To operate a WSU vehicle, a person must:

1. have a valid US or International license
2. be at least 18
3. have at least 3 years of experience operating a motor vehicle

To operate a WSU van, a person must have a current Van Driver Training II certificate.

To operate a USDA-ARS vehicle, a person must fill out a USDA-ARS Motor Vehicle Operator's Certification form, and have it signed by their USDA-ARS supervisor.

Office

The department's office space in buildings with laboratories is limited and new students often are assigned office space some distance from their laboratories. The office staff will present you with options as space is identified for new and continuing students and issue keys once the department has assigned offices.

Electronic Mail Account

The university's Information Technology manages electronic mail. You can set up an electronic mail account at:

https://www.it.wsu.edu/Nid/cgi-bin/nidgen_c.cgi?site=INFONET&sel_1=nw_cmptr&sel_2=create_nid

Other University Electronic Services

WSU provides a number of services such as viewing your academic records, using the on-line services of the library system, creating a WSU portal, changing your network id and email options at

<http://www.wsu.edu/do-it-online.html>

Mail Box

Mailboxes are in the department's work room (213B LJ Smith Hall). The office staff will assign mailboxes to you. Your address at the university is:

[Your Name]

Department of Biological Systems Engineering

Washington State University

P.O. Box 646120

Pullman, WA 99164-6120

It is not appropriate to use the university's mailing system for personal mail (for example, bank statements, letters from home, magazines). You cannot use the university's mailing system to send personal mail.

Responsibilities as WSU employees

Graduate students at WSU who are supported through teaching, research, or staff assistantships, and research fellowships shall assume the following responsibilities:

Teaching Assistants

Regardless of how their assignments are crafted, TAs have the responsibility to meet the goals and objectives of their teaching assignments as articulated by course instructors and departmental administrators. TAs should strive for the highest quality of instructional pedagogy and delivery of services to students. All grading responsibilities should be fulfilled thoughtfully and in a timely manner.

Research Assistants

Employment as an RA involves commitments, not only to thesis and dissertation research, but to the goals and objectives or deliverables of the sponsored project providing salary support. RAs should, therefore, be aware of responsibilities attendant to the University's Intellectual Property and Conflict of Interest policies and procedures.

Research Fellows

Recipients of research fellowships should understand the goals and objectives of sponsoring programs. These goals and objectives may require completion of training modules or internships, the development of a scholarly document (e.g., thesis or dissertation), or specific uses of support funds. It is the responsibility of RFs to be aware of such expectations and to meet them as completely as possible.

Vacation and Sick Leave

The Graduate School's document 12 establishes personnel policies for all graduate students paid by the university; it is available at the following web site:

<http://www.gradsch.wsu.edu/graddoc.htm>.

From there, go to document 12. The document states that graduate students paid by the university do not get any leave and that they are expected to be at work every normal work day, including periods when the university is not in session (classes not in session). Graduate assistants do not have to work on Federal or National holidays but have no other leave. If you have further questions about being away from work, contact your advisor.

1. Students on a half time RA or TA appointment are expected to work 20 hours a week. The work may or may not be related to your research, at the discretion of your faculty supervisor.
2. Vacation Days are specified in the WSU Policies and Procedures, and are not related to days when WSU classes are not in session (Thanksgiving Week, Christmas Break, Spring Break).
3. Support during the summer is a specific contract between you and the person providing the support.

Travel

The department has separate instructions for purchasing and for travel. The instructions can be found at www.bsyse.wsu/find_this_site

You must ask first before buying supplies or traveling. The university and the state have rules for purchasing supplies, for buying airplane tickets, and for reimbursing travelers. If you buy something (supplies, airplane tickets, etc.) without having proper permission before making the purchase, state law might prevent the university from reimbursing you.

Please read the instructions carefully so you will know what receipts to save when you have permission to purchase supplies or to travel.

Copier and other office supplies

The department's copy machine, located in the work room, is available for use on university business. The machine requires the use of a code that enables the staff to bill faculty members for using it. Your advisor will be able to tell you whether or not you should have your own code or use your advisor's code. If you need a code of your own, let the office staff know and they will assign one.

You should purchase paper, pens notebooks and other office supplies for your coursework. Office supplies needed for your research should be supplied by your thesis advisor.

Computer

Providing a personal computer for your use is up to your thesis advisor. The department has a computer laboratory on the second floor of LJ Smith Hall (room 218) that is available to you. The computers in the lab have limited capacity and software, but they are very useful for reading electronic mail, finding information on the World Wide Web, and completing assignments that do not require specialized software.

Stipend

Payment Schedule

You will be paid twice a month—on the 10th and on the 25th. For example, you will be paid on September 10 for the period August 16 – 31. You will be paid on January 25 for the period January 1 – 15.

Direct Deposit

You can have your pay check deposited directly into a bank account. The Payroll Office (236 French Administration Building) has forms you must complete for direct deposit. If you do not have your check directly deposited, the university will mail your pay check to your local address.

Summer Session

Students who are paid during the summer are usually paid as hourly employees (time slip). During the regular semester, you are paid automatically twice a month with no action on your part, but in the summer you must complete a time card at the end of every pay period. On the 15th of the month and the last day of the month starting on May 31, you need to come to the office, complete a time card, and have your advisor sign it. The office staff will help you with this process, but you must start it.

Academics

Tuition

You will have to pay at least some fees to the university. If you are paid on a project that will not allow us to pay tuition, you will have to pay tuition. In this case, your salary will be increased so that you can pay the cost of tuition and the higher taxes that come with a higher salary.

If you are being paid a regular salary, you can have these fees deducted from your pay check throughout the semester. You must complete a form at the university's Payroll Office (236 French Administration Building) before Payroll's deadline for starting this process. We recommend, in the strongest terms, that you have fees deducted from your pay check because of the possibility that you might be paid on a project that will not pay tuition. You might not realize that you are on this kind of project until the university keeps sending you a bill for full tuition and then it might be too late. It is best just to complete the form at Payroll every semester and have the fees deducted from your pay check.

The department and the university have no control over whether or not a project will pay tuition.

Graduate School requirements for the thesis Master's Degree

30 hours minimum of total credit

21 hours minimum of graded course work

15 hours minimum of graded course work at the 500-level

4 hours minimum of 700-level credit in major

6 hours maximum of non-graduate 300 and 400 level graded course work

- Seminars approved for graduate credit number 500 or above which are graded other than P/F or S/F may be a part of the master's program
- Any course graded S/F or P/F may not be used as graded course work.
- Any course listed on the student's "Program of Study" in which a grade of "C-" or below is earned must be repeated but not on a pass/fail basis.
- Graduate courses are those listed in the Graduate Catalog or have been approved for graduate credit since publication of the last Catalog.
- Once approved, the Master's Program of Study becomes part of the requirements of the degree. Subsequent alteration is made by submission of a Change of Program Form with the endorsement of the master's committee and the approval of the chair of the major department/program and the Dean of the Graduate School.

Graduate School requirements for the Doctorial Degree

72 hours minimum total credits beyond the bachelor's degree

34 hours minimum from graded courses

20 hours minimum 800-level research credits

9 hours maximum of non-graduate courses

courses for audit may not be used for the program of study

- Seminars numbered 500 or above which are graded other than P/F or S/F may be part of the core program.
- Courses graded S/F may not be used in the core program. Only those master's degree and transfer courses at a level equivalent to 500-level courses, and applicable to the doctoral core program, should be listed in this category.
- Any course included in the advanced degree program in which a grade of "C-" or below is earned must be repeated but not on a pass/fail basis

Register for Classes

You register for classes in the same way as any other student. Your advisor can help you with course selection. You will register using the METRO web application (www.metro.wsu.edu).

You should enroll for 18 hours every semester. Enrolling for 18 hours will not cost you any more money than enrolling for 10 hours, but the department gets credit for the hours. After deciding on your classes, you can enroll for BAE 700 or BAE 800 to bring your enrollment level to 18 hours.

If you are receiving tuition support from BAE you must receive written permission to take courses outside of their program of study. Download the form at www.bsyse.edu/NeedToMakeThisLink, fill out the course information and a justification for taking the course, and have your advisor sign the form.

Coursework for the BAE degrees

Seminar

An old humorous definition of a PhD is "someone who studies more and more about less and less until they know everything about nothing". That degree of

focus, to the exclusion of everything else, is not conducive to developing an inquisitive and exploratory view of the world. The BAE seminar series is one method to widen your viewpoint. Attendance at the seminar series is expected of every graduate student every semester while on the Pullman campus.

BAE M.S. Program Requirements

BSYSE 512 Research and Teaching Methods
BSYSE 541 Instrumentation and Measurements

BAE Ph.D. Program Requirements

BSYSE 512 Research and Teaching Methods
BSYSE 541 Instrumentation and Measurements
STAT 512 Analysis of Variance of Designed Experiments

Three credits of mathematics beyond Differential Equations. You may choose from:

MATH 540 Applied Mathematics I
MATH 548 Numerical Analysis

Or other courses approved by the advisors.

Land and Water Engineering Requirements

Core Courses

M.S. students choose two from the three core courses while Ph.D. students take all three courses

BSYSE 556 Surface Hydrologic Processes and Modeling
BSYSE 5XX Nutrient Cycling and Transport (in preparation)
BSYSE 595 Ground-water Flow and Contaminant Transport

Suggested Elective Courses

BSYSE 555 Natural Systems for Wastewater Treatment
BSYSE 557 Watershed Modeling and Management
BSYSE 562 Cropping Systems Modeling (To be revised)
SOILS 513 Soil Physics
SOILS 514 Environmental Biophysics
SOILS 515 Environmental Biophysics Laboratory
SOILS 521 Environmental Soil Chemistry
SOILS 523 Advanced Vadose Zone Hydrology
CE 517 Mechanics of Sediment Transport
CE 518 Hazardous Waste Engineering
CE 527 Advanced Soil Mechanics
CE 551 Open Channel Flow
CE 552 Advanced Topics in Hydraulic Engineering
CE 571 Meteorology
GEOL 569 Hydrogeology Methods (with lab)
GEOL 579 Groundwater Geochemistry
GEOL 584 Stable Isotope Geochemistry
ME 521 Fundamentals of Fluids I
ME 522 Fundamentals of Fluids II

Food Engineering Requirements

Core Courses

M.S. Program

BSYSE 581 Advanced Physical Properties of Foods

3

BSYSE 582	Food Process Engineering Design	3
BSYSE 584	Thermal Processing of Foods	3

Ph.D. Program

M.S. required courses plus two courses from the following list:

BSYSE 583	Food Separation Processes Design	3
BSYSE 586	Food Rheology	3
BSYSE 588	Food Powders	3
BSYSE 587	Food Plant Design	3
	Or other food engineering graduate courses	

Elective Courses

MS food engineering students should take at least seven credits and Ph.D. student should take at least nine credits from the following list:

FSHN 416	Food Microbiology	2
FSHN 417	Food Microbiology Laboratory	2
FSHN 460	Food Chemistry	3
FSHN 462	Food Analyses	3
FSHN 470	Advanced Food Processing Technologies	3
ME 404	Heat Transfer	3
ME 513	Conduction Heat Transfer	3
ME 514	Thermal Radiation Processes	3
ME 515	Advanced Heat Transfer	3
ME 521	Fundamentals of Fluids I	3
ME 522	Fundamentals of Fluids II	3
EE 517	Numerical Solutions to EM problems	3
EE 518	Advanced Electromagnetic Theory I	3
EE 538	EM Simulation	3
CE 534	Finite Elements	3
CE 556	Numeric Modeling in Fluid Mechanics	3
ChE 441	Process Control	3
ChE 510	Transport Processes	3
	And other graduate level courses offered in the CEA	

Environmental Engineering Requirements

Core Courses

M.S. students choose two from the three core courses while Ph.D. students take all five courses

BSYSE 556	Surface Hydrologic Processes and Modeling
BSYSE 5XX	Nutrient Cycling and Transport (in preparation)
BSYSE 555	Natural Systems for Wastewater Treatment
CE 541	Environmental Engineering Unit Operations
CE 542	Environmental Engineering Unit Processes

Suggested Elective Courses

BSYSE 595	Ground-water Flow and Contaminant Transport
BSYSE 557	Watershed Modeling and Management
CE515	Environment Measurements
CE 517	Mechanics of Sediment Transport
CE 518	Hazardous Waste Engineering
CE 519	Hazardous Water Treatment
CE 547	Principles of Environmental Engineering
CE 571	Meteorology
SOILS 514	Environmental Biophysics

SOILS 515 Environmental Biophysics Laboratory
SOILS 521 Environmental Soil Chemistry

Biomass Processing and Bioproduct Engineering Requirements

Core Courses

Required for M.S. and Ph.D. students.

BSYSE 594 Advanced Topics in Bioprocessing and Biotreatment
BSYSE 5XX Biorefinery Process Analysis and Design
BSYSE 5XX Biochemical, Biofuel and Bioenergy

Suggested Elective Courses

BSYSE 583 Food Separation Process Design
ChE 529 Chemical Engineering Kinetics
ChE 541 Chemical Engineering Analysis
ChE 546 Mass Transfer Operations
ChE 552 Process Optimization
ChE 560 Biochemical Engineering
ChE 575 Introduction to Biochemical Engineering
MBIOS 503 Molecular Biology I
MBIOS 503 Molecular Biology II
MBIOS 506 Molecular Techniques in Microbiology
MBIOS 513 General Biochemistry I
MBIOS 513 General Biochemistry II

Program of Study

No later than the end of the first semester Masters students (second semester for doctoral students) should fill out a program of study form (in consultation with the your committee), have it signed by the committee and submitted to the BAE Chair.

<http://www.gradsch.wsu.edu/forms.htm#programofstudy>

A brief, written research proposal must be attached to the Program of Study before it is signed by the committee, and the proposal will be a part of the Program of Study packet submitted to the Department Chair.

Length of time to complete Graduate study

The length of time required to complete a graduate degree can vary widely. Factors that affect the length of time to complete the degree include: academic background, scheduling of courses, the amount of preparation needed to prepare experiments, seasonality of data collection, and the time demands of employment. Except under unusual circumstances, a Masters student is expected to complete the degree requirements with two years of study past the Bachelors, and a Doctorial student is expected to complete the degree requirements within three years of study past the Masters.

Annual Review

All BAE graduate students will be reviewed annually in the early spring for progress toward completing their degree and, for those students employed by WSU, performance with respect to their employment. It is your responsibility to initiate the review by completing the "Graduate Student Annual Review" form located at www.bsyse.wsu.edu/GraduateStudentAnnualReview , and submitting the form to their advisor. After reviewing your documentation, the advisor will fill out the advisor's portion of the form, discuss the review material with you, and then submit the completed form to the BAE Chair.

You should be aware that lack of performance with respect to your employment responsibilities may lead to termination of financial support, and lack of academic progress may lead to termination of your graduate program.

Research portion of your graduate education

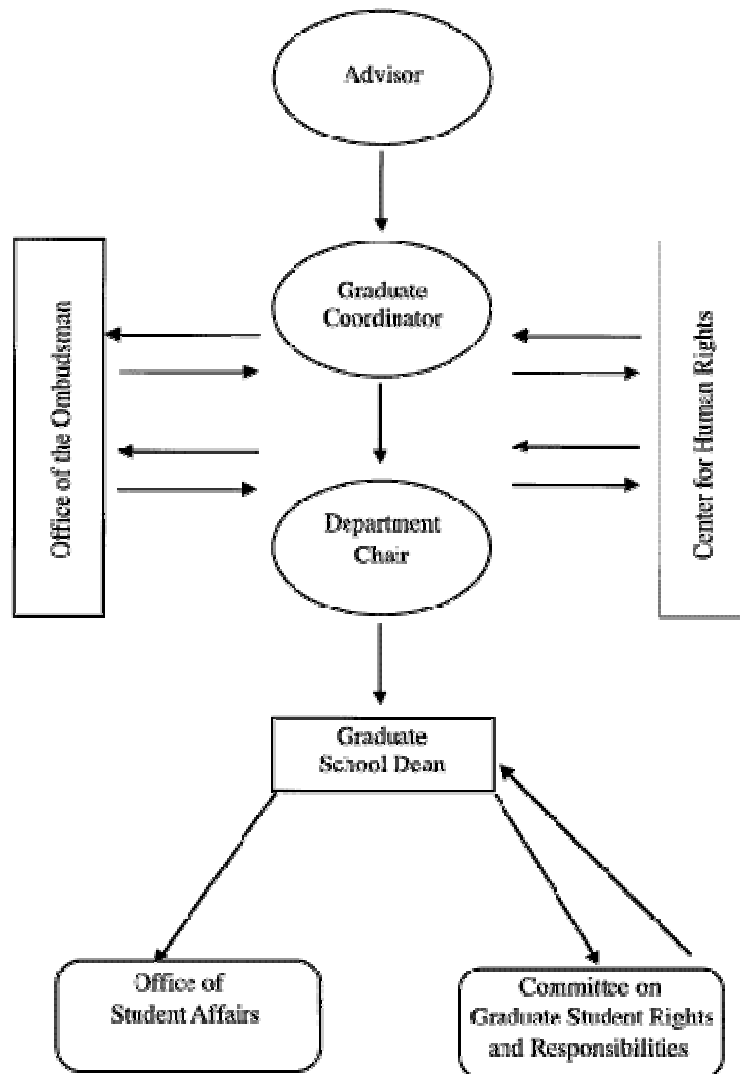
Advisor

In most cases the advisor – student relationship is identified before the student arrives on campus. For students offered a stipend, their advisor will be the faculty member offering the stipend.

A few students have financial support from sources outside of the university (personal support, grants, fellowships). These students will not have a advisor when they arrive on campus. During the first semester, they will be assigned a “transition” advisor. The student has the responsibility to interview the BAE graduate faculty, and to reach a mutual advisor-student agreement with a faculty member.

Resolving conflicts between students and advisors

The Graduate Student code diagrams a course of actions for resolving conflicts between students and advisors. As with all interactions between advisors and students, all parties are expected to act in a professional manner as outlined in the expectations section. If the conflict is not resolved at one level, you encouraged to pursue resolution of the conflict at the next level.



Thesis / Dissertation Committee Structure

During the first semester, MS students should form a thesis committee. By the end of the second semester doctoral students should form a doctoral committee. Identification of potential committee members should be made in consultation with your advisor.

A thesis / dissertation committee consists of a minimum of three members. Two members must be BAE faculty in your research area (Food, Land & Water, Environmental, Biomass Processing), and the third from the WSU Graduate Faculty. Additional members are welcomed as they can contribute to your education. Committee members must have a terminal degree at the same level as the degree sought. Adjunct or Affiliate faculty may co-chair the committee with a BAE faculty member.

Thesis / Dissertation meetings

During the first two semesters you should meet frequently with their committee to develop a common vision for the research, generalized methodology to complete the research, and to identify course work required to complete the research. After the first year, you

should continue to meet with their committee. At a minimum, you should meet with the committee once a year. More frequent meetings are encouraged.

You are responsible for calling a committee meeting, setting an agenda and arranging for a meeting room. These arrangements should be made in consultation with your advisor.

Prior to Prelim (PhD only)

1. Begin this checklist when you are in the semester when most of the coursework will be completed.
2. Prepare Dissertation Proposal
3. File a Preliminary Examination Scheduling Form with the Graduate School at least 10 working days before the examination date (<http://www.gradsch.wsu.edu/PrelimSched.pdf>)

Preliminary Exam (PhD only)

Once most of the course work listed in the Program of Study is completed, a research proposal is prepared, and before a substantive amount of research is completed you will take a preliminary exam. The preliminary exam is a major decision point where the dissertation committee evaluate your academic preparation (course work) and your potential for completing the research portion of your graduate education.

You are responsible for scheduling the preliminary examination. You must be registered (minimum of two hours of BAE 800) as a regular graduate student at the beginning of the semester in which the preliminary examination is to be taken, and have at least a 3.0 cumulative grade point average and a 3.0 grade point average or higher on the program courses already taken before the preliminary examination may be scheduled.

The exam consists of a written and an oral section. The written portion will consist of one set of questions per committee member. The committee members will set the format (in a classroom setting or take home; open or closed book) for their portion of the written exam.

The format of the oral portion of the examination is determined by the dissertation committee. You may be asked to summarize the research proposal, about your answers to the written portion of the exam, and about completed course work. You should discuss the format of the preliminary exam with the committee prior to the examination date.

The members of the doctoral committee must be present at the examination or ballot meeting, and all must vote. Any other BAE graduate engineering faculty may be present and may vote. At the discretion of the BAE chair, members of the faculty from other departments/programs and faculty members from the major and minor departments/programs may be present, may ask questions, but shall not vote. All faculty wishing to vote must be in attendance during all of the examination. If a faculty member wishing to vote must leave the room during the examination, the examination is to be recessed until said member returns.

The content and conduct of a preliminary examination is the responsibility of the BAE faculty and will be administered by the BAE chair or someone delegated by the chair. The chair shall be responsible for conducting a fair and searching examination and for affording a reasonable opportunity during the oral portion for all examiners to question you. There is no time limit for either the written or oral, but all aspects of the examination must be completed within 30 days from the beginning.

At the conclusion of the oral, the candidate's total performance on the examination should be discussed and ballots cast on the basis of the entire examination. The candidate shall pass if a minimum of three-fourths of those voting so indicate.

A student who has failed a preliminary examination has a right to a second examination. At least three months must lapse between a failed examination and a re-examination. During the re-examination, a Graduate School representative and the entire committee must be present and vote. A student who has failed two preliminary examinations may not become a candidate for the doctorate degree and the student's enrollment in the Graduate School will be terminated.

Final Exam (Masters and Doctoral)

Deadlines and Documents

1. You must be enrolled in at least 2 credit hours of BAE 700 or BAE 800 in the semester in which the exam is scheduled.
2. Application for Degree form must be on file in the Graduate School
3. The Final Examination Scheduling Form must be completed and signed by the thesis / dissertation committee.
The thesis/dissertation committee is responsible for approving all aspects of the final thesis before you may schedule the final examination. When committee members sign the Thesis Acceptance/Final Examination scheduling form, they indicate that a typed thesis, suitable in format for submission to the Library, has been given their approval. They also indicate their acceptance of the date, time, and place of the final examination.
4. You must present a copy of the thesis / dissertation to the Graduate School for a preliminary check when submitting the Final Examination Scheduling Form.
5. You must provide a copy of the thesis / dissertation to the BAE Program for public display 5 working days before the examination
6. You must provide a copy of the thesis / dissertation to your committee at least 5 working days prior to the examination date.
7. All Graduate School fees must be paid

Thesis / Dissertation Requirements

Length of Thesis / Dissertation

The length of your thesis or dissertation will depend on the research topic, and will be determined in consultation with your committee. BAE minimum requirements are one chapter (equivalent to a peer-reviewed journal article) for a Master's thesis and 3 chapters (equivalent to 3 peer-reviewed journal articles) for a Doctorial dissertation.

Thesis / Dissertation Format Requirements

The Graduate School has specific format requirements for your thesis / dissertation. These guidelines can be found at:

Thesis: <http://www.gradsch.wsu.edu/forms/ThesFmtGdln.pdf>

Dissertation:

<http://www.gradsch.wsu.edu/forms/DissFmtGdln.pdf>

Requirements for Thesis Binding

Following a successful examination, and after final revisions have been completed, you are responsible for giving the Graduate School two unbound copies of the thesis. See the Graduate School policies (Information Sheet for Committee Members and Students Planning Final Examinations) for a description of the requirements regarding these copies.

You are responsible for providing a bound copy of the thesis /dissertation to the department for the department's library of theses and dissertations. You are responsible for having the document bound.

- The copy for the department should be printed on 25% bond paper.
- The color for the binding should be "Red Fab," which is also called "Red Sturdite."
- The binding should be no more than 11 1/4 inches high and no more than 8 1/2 inches wide.
- The following should be printed in gold letters on the front and the spine: Title, author's name, year. If the publication is fairly thin, the title imprint on the spine might have to be shortened.
- Please ask the department staff for a list of acceptable binderies. At the time of publishing these instructions, Kinko's was not acceptable because the binding material was too large and because the printing on the binding material was not in gold letters.

Check with your advisor about additional requirements the advisor might have for copies of the thesis, especially bound copies.

You are responsible for the cost of printing, copying, and binding the thesis.

Public Notice of Final Exams

After scheduling a preliminary examination or final examination, you should provide a copy of the scheduling form to the department staff. After receiving the copy of the form, the staff will be responsible for writing notices of the exam, sending a notice to every member of the graduate faculty, posting notices in the department, and sending copies of the notice to other interested departments.

A Ph.D. student completing the final oral examination is responsible for keeping a copy of the notice of the examination, which the Graduate School requires the student to submit along with copies of the dissertation.

Seminar

You will present a 50 minute seminar describing your research on your examination date, prior to the oral examination. The seminar should be prepared for a general audience of engineers and scientists.

Please note that the time scheduled on the form is the exact time for the examination. It is not the time for the seminar, which is normally scheduled for the hour prior to the examination. If you say that the exam starts on the hour (if you say 9:00 a.m., for example), then it will start on the hour, not at ten minutes past the hour. If you write the time as ten minutes past the hour (9:10 a.m., for example), the exam will start at ten minutes after the hour.

Whenever possible, all graduate students are expected to attend these seminars.

Oral Examination

Master's Examination

A final examination is required of all master's candidates. This examination is intended to test the candidate's ability to carry out a critical dialogue integrating and interpreting material in the major and supporting fields with emphasis on the work presented in the thesis or special problem.

Examinations are to be held in an academic environment. All faculty wishing to vote must be in attendance during all of the examination. If a faculty member

wishing to vote must leave the room during the examination, the examination is to be recessed until said member returns. Final examinations shall be held during regular working hours either on the Pullman or branch campus, or by videoconference over WHETS. Examinations will be held only during academic sessions. Exceptions to this policy will be made by the Dean of the Graduate School only under unusual circumstances.

Final examinations for thesis master's students are public. All faculty members, regardless of discipline, are encouraged to attend. The examining committee shall include the members of the master's committee whose chair presides, the representative of the Graduate Studies Committee and any other member of the faculty in attendance. Although any member of the public at large may attend a final examination, only faculty members may ask questions and vote. All members of the master's committee must attend and vote.

The examination is normally one hour in duration and is limited to one and one-half hours.

A student who has failed a Master's examination has a right to a second examination. During the re-examination, a Graduate School representative and the entire committee must be present and vote. A second failed Master's examination will result in termination of the student's enrollment in the Graduate School.

Doctoral Examination

A candidate for a doctorate must pass a final oral examination that primarily shall be a defense of the dissertation but may cover the general fields of knowledge pertinent to the degree.

Final examinations will be held over a completed dissertation suitable in format and content for submission to the Library. Under extraordinary circumstances, on the recommendation of the student's committee and upon the advice of the Graduate Studies Committee, the Dean of the Graduate School may approve alternative arrangements.

Examinations are to be held in an academic environment. Final examinations shall be held during regular working hours either on the Pullman campus or scheduling over WHETS. Examinations will be held only during academic sessions. Exceptions to this policy will be made by the Dean of the Graduate School only under unusual circumstances.

The examining committee shall include the doctoral committee and any other members of the faculty in attendance. The chair of your committee will chair the final examination and be responsible for its conduct. All final examinations are public, and all faculty members, regardless of discipline, are particularly encouraged to attend those of interest to them. Although any member of the public at large may attend final examinations, only faculty members may ask questions and vote. All members of the doctoral committee must attend and vote. All faculty wishing to vote must be in attendance during all of the examination. If a faculty member wishing to vote must leave the room during the examination, the examination is to be recessed until said member returns.

The final doctoral examination is normally limited to two hours and should not exceed two and one-half hours.

A student who has failed a Doctorial examination has a right to a second examination. During the re-examination, a Graduate School representative a the entire committee must be present and vote. A second failed Doctorial examination will result in termination of the student's enrollment in the Graduate School.

Finalizing / cleaning up

1. Two copies of the corrected and signed thesis / dissertation must be submitted to the Graduate School within 5 working days following the examination.
2. You must complete and submit a "Copyright Acknowledgement" form to the Graduate School.
3. Doctorial students must submit a signed "Dissertation Agreement" form to the Graduate School
4. Doctorial students must submit a complete and sign a "Survey of Earned Doctorates"
5. The various forms can be found at:
<http://www.gradsch.wsu.edu/forms.htm#programofstudy>
6. You must schedule an Exit Interview with the Department Chair.
7. You must clean up your laboratory space and return equipment and materials
8. You must clean up your office space and return any keys to WSU facilities

Planning for post WSU