The

Voiland School of Chemical

Engineering and Bioengineering

Graduate Student

Handbook
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New Student Check-In

When you arrive in Pullman you should check in with the department in Wegner 105. In order to receive stipend checks, each student must have a social security number, a local (in-state) address, and an I-9 Employment Eligibility Verification form (see detailed information below).

Getting Paid
New students who are on appointment -- that is those who have been offered a Research Assistantship (RA) or a Teaching Assistantship (TA) and those who will be paid on an hourly basis -- are considered employees of the university. Consequently it is necessary to have a social security number in order to fill out an I-9 form and a W-4 form.

Social Security Number
New international graduate students who do not have a social security number should apply for one immediately. If you don’t have the chance to apply during orientation, the nearest Social Security Office is located in Lewiston Idaho. The Lewiston Office, located at 1617 19th Avenue, is open weekdays, phone: (208) 746-2995. When applying for your social security number, OBTAIN A COPY OF YOUR RECEIPT and take it to Samantha in the Voiland School office, Wegner 105H. This will enable Payroll to provide a temporary social security number for payment of your first check only. Once you receive your social security card in the mail take it to the Payroll Office. You cannot continue to be paid without a social security number.

I-9 Form
New students who have never been employed at WSU before, must fill out an I-9 form and present the required identification at the Voiland School office. Check the list of acceptable documents in the back of this handbook (Appendix D). A copy of the I-9 Form can be obtained in the School office (Wegner 105). Federal Law requires us to personally view your documents.

W-4 Form
All newly employed graduate students must complete a W-4 form. A copy of the W-4 can be obtained at the Payroll Services Office. By state law, all students who are on appointment must live in the state of Washington. Non-resident graduate students on assistantship appointments are eligible for a non-resident waiver for the out-of-state portion of tuition during the first year they are on assistantship appointment at WSU. During that first year, students are responsible for taking all necessary steps to establish legal residency in the state of Washington. If residency is not established, non-resident U.S. Citizen or Permanent Resident graduate students will be responsible for non-resident tuition after their first academic year. International students are provided an out-of-state tuition waiver with their assistantship appointment throughout their academic career.
**Tuition/Fees & Training:**

**All Self-Funded students are responsible for paying all student fees and tuition.** Students whom are on an appointment are personally responsible for paying student and activity fees and residual tuition. These amounts vary from year to year. You may sign up for payroll deduction to have these fees and tuition automatically deducted from your paychecks. Go to your MyWSU account to fill out the payroll deduction request form. Instructions can be found at: [http://payroll.wsu.edu/stntpay/gradpayded.htm](http://payroll.wsu.edu/stntpay/gradpayded.htm)

Be aware that in order to have payroll deduction you must be on an Assistantship (RA or TA) and be enrolled in at least 10 credits. Graduate students on appointment will receive medical insurance as a fringe benefit. Those paid on a time slip appointment, do not receive this insurance. See [http://studentinsurance.wsu.edu/uninsured-students/](http://studentinsurance.wsu.edu/uninsured-students/) for information about purchasing medical insurance in the marketplace.

**Pay Periods:**

For those on appointment in the fall, the hire date is August 16\(^{th}\) (January 1\(^{st}\) for spring semester; May 16\(^{th}\) for summer semester). You will be paid twice per month; you will receive the paycheck for the first half of the month (1\(^{st}\)-15\(^{th}\) of the month) on the 25\(^{th}\) of the month; you will receive the paycheck for the second half of the month (16\(^{th}\)-last day of month) on the 10\(^{th}\) of the following month. Checks are mailed to your home address or you may make arrangements for direct deposit to your bank through the Payroll Office. If you do not receive your check, be sure that you have supplied us with your social security number, have submitted a W-4 form, an I-9 form, and have your correct address on file in the Payroll Office.

**Addresses and Phone Numbers:**

Each individual is responsible for keeping his/her contact information (mailing address, phone number, etc.) current with the university. Changes can be made via your MyWSU account.

**Training:**

All graduate students are required to take the "Responsible Conduct of Research" training. This is a web-based training located at: [http://www.myresearch.wsu.edu](http://www.myresearch.wsu.edu)

**International Teaching Assistants Exam:**

All International students who have been appointed a Teaching Assistantship (TA) must take the ITA Exam, offered by the Intensive American Language Center (IALC) and earn a score of at least a “4”. Those whose score is less than “4” will not receive support as a TA. For more information on this exam see link: [http://ip.wsu.edu/IALC/international-TAs.html](http://ip.wsu.edu/IALC/international-TAs.html)
Process for Graduate Assistant Tuition Waivers

How the Process Works:

- After you have been offered a Graduate Assistantship by the School, we will submit a “hiring” transaction to the Personnel & Payroll System (PERMs), along with position documents.

- The Graduate School will review/approve the appointment, funding and waiver data in PERMs and forward to HRS for additional nightly updates/approvals of Graduate Assistantship employment transactions.

- The Graduate School notifies Student Accounts and Scholarship Services of the amount of tuition waiver to be applied.

- The next day, Payroll Services will review appointment lengths, enrolled hours and funding source from the latest update before awarding Qualified Tuition Reductions to Student Accounts.

- Student Accounts will post the waiver on the student’s account to apply against tuition charge. Note that you must be enrolled in 10 to 18 credits and have tuition charges for the waiver to post. Waiver does NOT cover mandatory fees. Student is held responsible for paying required mandatory fees.

- Scholarship Services will account for your waiver as a placeholder on your financial aid account and assume the same projected amount for the second semester. Note there are some special waivers submitted by the Graduate School directly to Scholarship Services that are posted and disbursed directly to the student’s account.

Troubleshooting:

- This waiver in conjunction with any other tuition waivers you receive cannot exceed the cost of your tuition charges. If this occurs, your tuition waiver will be reversed.

- If this waiver is applied after your financial aid has disbursed and results in an over award, you will see a swap of funding. Waiver will replace loan funding that is reversed. If you no longer are receiving a tuition waiver, the Graduate School will notify Student Accounts and Scholarship Services of this change.

If your department has sent your appointment paperwork to the Graduate School, please be patient at the beginning of the semester to allow for this process to be completed. If you don’t see your waiver posted after two weeks, contact your department.
Funded Appointments

Many students are offered financial support as either a Research Assistant (RA) or a Teaching Assistant (TA). Such financial support, regardless of the type of appointment, should be viewed as a job which requires work in addition to the coursework and research required to complete your degree. Moreover, the work performed on the appointment may or may not be congruent with the work needed to complete the research portion of the degree. Thus, in addition to the research activities needed to complete the degree being pursued, a student appointed on a half-time RA should perform no less than 20 hours per week service for the project supporting him/her. To receive funding, students must ensure that they are enrolled in at least 10 credits of WSU coursework.

A student appointed as an RA will typically receive 11 months of support per calendar year. The actual salary paid is determined by the major advisor based on availability of sponsored program funds using a salary step schedule established by the university. As noted above, an RA is expected to work on a sponsored research project and to also make normal progress on her/his research project. The sponsored research project that supports the student may or may not be congruent with the research project being completed as part of the degree program. Like faculty, RAs are typically paid for 11 months per calendar year, with one month of vacation, including semester and summer breaks. In all cases, students should obtain permission from their major advisor before scheduling vacations. Breaks in the academic calendar occasioned by the absence of students from the campus are not University holidays. Persons with ongoing responsibilities during these periods are expected to perform such duties without regard to the absence of the students, unless special understandings are reached in the particular case and noted in the comment section in PERMS.

Leave and Vacation Policy: During the term of their appointments, all graduate student service appointees are expected to be at work each normal workday, including periods when the university is not in session with the exception of the legal holidays designated by the Board of Regents. Graduate Students on appointment do not earn annual leave or sick leave.

TA appointments only apply during the 9-month period between August 16 and May 15. Consequently, these appointments are usually supplemented by two months summer support (as an RA, time slip, or TA for summer-session classes). As in the case of RAs, 20 hours/week of service are expected for a half-time TA appointment.

PhD students will receive financial support while completing their degree at WSU. However, continuation of financial support depends upon research aptitude and productivity, maintenance of a satisfactory grade-point average, academic integrity, timely progress toward degree completion, and the availability of funds. PhD students making timely progress toward their degree should plan to complete their degree within 3-5 years of study beyond the bachelor’s degree.
Financial Aid

Financial Aid and Number of Credits Accumulated
The Financial Aid Office continues to implement the new federal financial aid requirements regarding SAP—Satisfactory Academic Progress (SAP)—in the MyWSU system. The SAP requirements, which involve the total number of credits accumulated and the grading of those credits, are noted below:

Total Number of Credits for the Master’s Degree
Graduate School policy states the following for Master’s degrees: “Most full-time students enrolled in master’s degree programs at WSU require 2-3 years for completion of their program.” Since some master’s programs require 3 years, the Financial Aid Office has set the SAP credit limit at 72 credits for a master’s degree. Once master’s degree students exceed 72 credits, if they are receiving financial aid they will receive a notice that they are not making adequate academic progress, and they will have to appeal to have their financial aid continue. You should ensure that you do not exceed these limits. If your program requirements exceed 72 credits, please contact the Financial Aid Office: http://finaid.wsu.edu/ who will assess whether the additional credits can be accommodated.

Total Number of Credits for the Doctoral Degree
Graduate School policy states the following for Doctoral degrees: “Most full-time students enrolled in doctoral degree programs at WSU require 4-6 years for completion of their program.” The Financial Aid Office has set the reasonable timeframe at 180 credits, which should cover most of our doctoral students. Once doctoral students exceed 180 credits, if they are receiving financial aid they will receive a notice that they are not making adequate academic progress, and they will have to appeal to have their financial aid continue. Again, take steps to ensure you do not exceed this limit.

X” Grade
For financial aid purposes, the “X” grade, along with the “I” (incomplete) “W” (withdrawn) and U (unsatisfactory) grades, indicates that the student is not making satisfactory academic progress toward their degree. As such, the Graduate School recommends that the X grade is not used for students who are making satisfactory academic progress in their research credits. Graduate School policy states that faculty may use the X grade in extenuating circumstances to indicate continuing progress toward completion of program requirements. The “X” grade should be changed to an “S” grade when the faculty determines that the student has successfully met the requirements or to a “U” grade in the event that the student has not met the requirements within the required timeframe. It is important to note that use of the “X” grade indicates that no credit is earned and will negatively impact the graduate student’s eligibility for financial aid.

Students who are not making satisfactory academic progress for financial aid purposes will be notified by the Office of Financial Aid and Scholarships and will need to file an appeal with the Office of Financial Aid and Scholarships in order to continue receiving financial aid.
Establishing State Residency

Graduate students who are not Washington State residents and are eligible to establish residency must complete a number of requirements soon after their arrival on campus. Some international students are also eligible to establish state residency depending upon their type of visa status. Washington state residency requirements are presented during New Student Orientation and are also outlined below. New students must complete the items in the checklist quickly—including obtaining a Washington State driver’s license or State ID card, registering to vote, registering your vehicle, establishing housing and a bank account in the state.

Tuition is considerably less expensive for in-state Washington residents than for out-of-state students. Residency information, deadline dates, the Residency Questionnaire and a list of required supporting documentation necessary for establishing residency for tuition-paying purposes may be found at http://residency.wsu.edu/

Decisions on residence status are based on documentary evidence submitted which become a part of a student’s file and are not returned.

Beginning one year prior to the semester during which the student plans to apply for in-state residence status, the student should establish ties in Washington State. The applicable items included in the checklist should be completed within two weeks of arrival in Pullman. After having lived in Washington for one year, the student should submit a residency application to the Graduate School.
Policy Clarification On 700, 702 and 800 Credits

Graduate School Policy states:

702 Credit:
“The 702 credit is a Master’s Special Problems, Directed Study, and/or Examination credit. Credits are variable and grading is satisfactory/unsatisfactory (S,U). Credit is awarded for a grade of S; no credit is awarded for a grade of U. The S/U grade does not carry any quality points and is not calculated in the grade point average (GPA). Faculty should set course requirements for each semester that a student is enrolled in 702 credits, and provide an S/U grade at the end of the semester based on the student’s performance in meeting those requirements. In the event of exam failure, a U grade may be recorded for that semester’s 702 credits. Two U grades for 702 credits will lead to dismissal from the program. ...”

700/800-Level Research Credit:
“Each graduate program has associated 700- (Master’s) or 800- (Doctoral) level credits for research and advanced study. The 700-level credit is for students working on their master’s research, thesis and/or examination. The 800-level credit is for doctoral research, dissertation and/or examination. Credits are variable and grading is satisfactory/unsatisfactory (S,U). Credit is awarded for a grade of S; no credit is awarded for a grade of U. The S/U grade does not carry any quality points and is not calculated in the grade point average (GPA). Faculty should set requirements for each semester that a student is enrolled in research credits, and provide an S/U grade at the end of the semester based on the student’s performance in meeting those requirements. In the event of exam failure, a U grade may be recorded for that semester’s 700 or 800 credits. Two U grades for 700 or 800 credits will lead to dismissal from the program. ...”

Policy Clarification:
Because 702,700 or 800 credits are associated with students’ work on research projects or special problems/directed study, a formal course syllabus is not required; however, students are still held accountable for meeting the expectations set by the faculty who are guiding their 702, 700 or 800 work, and for the standards of conduct and the academic integrity requirements to which all WSU students are held accountable. Students found responsible for academic integrity violations in their research or special problems/directed study work for 700, 702, or 800 credits may receive a U grade for unsatisfactory progress for that semester.”
Enrollment in Research Credit

The Northwest Commission on Colleges and Universities, which accredits WSU, and the federal government has defined a credit hour as:

“an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally established equivalency that reasonably approximates not less than:

1. One hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work each week for approximately fifteen weeks for one semester or trimester hour of credit, or ten to twelve weeks for one quarter hour of credit, or the equivalent amount of work over a different amount of time; or

2. At least an equivalent amount of work as required in paragraph (1) of this definition for other academic activities as established by the institution, including laboratory work, internships, practica, studio work, and other academic work leading to the award of credit hours.”

The 700, 702, and 800 courses in engineering are instructor-led laboratory experiences in which the instructor will supervise multiple students much like a science laboratory in an undergraduate course. Graduate students will work on appoints which may, or may not, be subsets of their graduate thesis/project work. An undergraduate will typically take 16 credits per semester, but may take as much as 18 credits. Using the Federal Definition of a credit hour, this undergraduate course load would imply that a student should spend 48 – 54 hours per week to complete their coursework, including laboratory work. Graduate students who wish to be successful should work at least as much as an undergraduate. However, those students who receive financial assistance as a TA, or other work which does not advance their thesis research, may not be able to devote this much time to coursework/laboratory work.

Consequently, chemical engineering and engineering science students working with VSCEB faculty should use the following guidelines when determining the number of ChE 700, 702, or 800 credits to enroll in:

If a graduate student is supported via funds (TA or RA) for which the work is not a subset of the student’s thesis/project work, the student should register for 10 – 12 credits (total) per semester

If the graduate student is self-supporting, supported by funds with no service requirement, or supported by funds (typically an RA or traineeship) for which the work is a subset of the student’s thesis/project, then the student should register for 16 – 18 credits per semester, in a fashion similar to that of undergraduates.
Graduate Advisor/Research Project Selection

If a direct offer is not made to a student to join a specific lab/mentor, then students in the Chemical Engineering program are employed as Teaching Assistants during their first semester at WSU. This gives you, the student, time to become acquainted with the program and to make an informed selection of graduate mentor and research project. Nevertheless, it is essential that you conscientiously work toward the selection of the mentor with whom you will complete the research portion of your graduate education and the specific project on which you will work. Thus, the following procedure is designed to help you complete steps that will enable you to make a well-informed project selection decision. For those students who are participating in a training program, such as the Protein Biotechnology Training Program sponsored by the NIH, the laboratory rotation requirements of the training program supersede those described below.

These activities help you understand the range of activities in the Voiland School and to have some knowledge of the resources available in the various laboratories on which you might draw as you pursue your graduate degree. Therefore, as soon as possible after you arrive at WSU, you should arrange to meet with each potential mentor. Depending on the faculty member’s preferences, you may be asked to either meet individually with the faculty member, or she/he may arrange a time to meet with new graduate students as a group. In this meeting, the faculty members will discuss their general research program and potential research projects. To ensure that all new students meet with each potential mentor, the "Laboratory Rotation Selection Form" must be initialed by each faculty member listed. After you have visited with all the potential mentors, the form should be turned into Samantha at the end of the second week of the semester. On this form, you should list, in rank order, five faculty members with whom you would like to complete a laboratory rotation during your first semester at WSU. Should you desire rotations with faculty both in Pullman and Richland, every effort will be made to devise strategies to allow you to spend time in laboratories and to interact with faculty on the appropriate campus.

Within two weeks after submission of all rotation selection forms, the potential mentors will meet and determine laboratory rotation assignments. During the laboratory rotation, you will spend three weeks working in each of the three faculty laboratories. During this time, you are to participate in laboratory group meetings, learn about general laboratory procedures, become acquainted with graduate students working with the faculty member, and generally become more informed about the faculty member’s research, style, and typical expectations. At the same time, the faculty member and his/her current graduate students will be assessing your work ethic, background knowledge, ability to communicate, personality, etc. to determine your fit within the group. (see next page)

It is your responsibility to take the steps necessary to learn the time and location for group meetings, to interact with existing group members etc.

By the end of the first week of December, you should provide a ranked list of mentors and projects for the research portion of your graduate educational experience.
Graduate Advisor/Research Project Selection  
(continued)

After all new students have submitted their list of preferences, the faculty will meet to assign each student a specific project. Every attempt will be made to assign you to your first, second, or third choice. Should this not be possible, the Voiland School Director and select faculty will confer directly with you before assigning you to work on a specific project. Note, however, that only in extreme exceptional circumstances will students be allowed to work on projects funded by the School. *This is, virtually all students will be expected to work on projects funded by externally sponsored grants/contracts which will pay student salaries and provide needed equipment and supplies.* Alternatively, for new faculty, institutional resources provided to help initiate the faculty member’s successful career (so-called startup funds) may be used to support a student and provide supplies.

To ensure smooth and steady progress toward the degree, it is very important that you begin research as soon as possible. In cases where students delay beginning their research, completion of the thesis often significantly delays graduation.
Establishing Your Graduate Committee

If a student does not join a lab directly, the Voiland School Director will serve as the student’s advisor until a permanent chair is obtained, by the end of the first semester. Ultimately, it is the student’s responsibility to obtain a permanent chair and committee members for his/her graduate program committee.

The Advisory Committee, including the permanent chair, is appointed when the program of study is filed. This step should be completed during the student’s second semester at WSU. The graduate committee of each student shall have a minimum of three members. A majority of committee members shall be active Chemical Engineering Graduate Faculty. At least two of the committee members must be tenured or tenure-track members of the Voiland School faculty. All committee members must hold a degree of comparable level to the degree sought by the candidate.

The fourth and subsequent committee member(s) who holds the highest appropriate degree and whose special knowledge is particularly important to the proposed program, but is not a member of the Voiland School’s graduate faculty, may also serve on the committee. Such an individual might be a faculty member from another graduate program at WSU or from another university, or an individual from an appropriate government, business or industry organization, who is not designated as an official graduate faculty. Such an individual may be nominated and approved to serve on a graduate student committee on a case-by-case basis upon written request by the Director of the Voiland School to the Dean of the Graduate School. A current curriculum vita must be included with the written request.

Committees may have more than three members; however, members must meet Graduate School policy and program bylaw guidelines. It is imperative to avoid situations which may constitute, or may be construed as, a conflict of interest when forming a graduate student’s committee. The Graduate School has the final approval for all graduate student committees.

The initial selection, or subsequent changes, of a graduate student’s committee shall be determined jointly by the student and the student’s advisor in accordance with the policy and procedures outlined in the Chemical Engineering graduate handbook at the time the student first enrolls in the chemical engineering program for which she/he is seeking a degree.
The B.S./Grad Program

The BS/GRAD program provides the opportunity to accelerate towards a graduate degree in chemical engineering after being in the B.S. degree in ChE at WSU. The department needs an official acceptance or rejection of the offer made to you to participate in the BS/GRAD program. A simple sentence indicating your intentions and your signature will be sufficient.

During the Senior Year

Six credits from ChE or technical electives can be reserved for graduate credit (three each semester), by using the Graduate School’s Request for Reservation of Graduate Credit form. These six credits are then waived by the department as requirements for the B.S. degree. ChE 499 can be taken to fulfill the remaining three credits of ChE electives and the research topic can be the subject of your graduate thesis. This is an opportunity to get started on the graduate research project during the senior year.

Students interested in the B.S. / GRAD program, must apply for admission via the Graduate School’s website. https://gradschool.wsu.edu/apply/

- Three letters of recommendation will be required.

Selecting your Research Project

Each student is required to interview all VSCEB faculty to learn about the research projects available. A project selection form is available from the department office. At the conclusion of your interviews you will indicate your first, second, and third choices and return the form to the main office (Wegner 105). The faculty will then meet to make a decision regarding your research assignment.
M.S. Program Requirements

The M.S. programs are designed to be a mixture of advanced course work and an individual research project. For those students selecting the thesis option, a major advisor and research project should be selected during your first semester. Within the second semester of your graduate studies, you should select a thesis committee and submit a Program of Study. The primary purposes of the thesis committee is to provide advice about your research project, to examine the thesis, make constructive criticisms of its content and presentation, and to administer the final oral examination. The final oral examination is normally, but not necessarily, limited to a defense of the thesis. An important component of the final examination is the presentation of a formal seminar on your research results before faculty and graduate students. The specific requirements for each of the three M.S. programs offered by the department are given on the following three pages.

Graduate Course Offerings

Normally the department does not offer graduate courses in the summer. To facilitate the courses, they will be taught using videoconference technologies and delivered to Pullman, and the Tri-Cities Campus. Appendix D lists a description of all the departmental graduate level courses.
M.S. in Chemical Engineering

THESIS PROGRAM (21 graded credits / 30 total for degree completion)
(FOR STUDENTS WITH B.S. IN CHEMICAL ENGINEERING)

ChE 510 (Transport Phenomena) - 3 credits
ChE 596 (Research Methods) – 3 credits
ChE 527 (Thermodynamics) – 3 credits
CHE 529 (Kinetics) - 3 credits

9 additional credits in supporting courses as approved by advisor.

CHE 598 Seminar (1 credit) every semester.

CHE 700 (research credit) every semester – credit amount will vary per semester
(at least 9 credits be completed to meet graduation requirements.)

Submit program of study within second semester of enrollment.

NON-THESIS PROGRAM (26 graded credits / 30 total for degree completion)

ChE 510 or the equivalent (Transport Phenomena) - 3 credits
ChE 596 (Research Methods and Communications) – 3 credits
ChE 527 (Thermodynamics) – 3 credits
CHE 529 (Kinetics) - 3 credits

6 credits of 500 level CHE courses

8 additional credits approved by your advisor

CHE 598 Seminar (1 credit) every semester

CHE 702 (research credit) every semester – credit amount will vary per semester
(at least 4 must be completed to meet graduation requirements.)

Submit program of study within second semester of enrollment.
M.S. in Chemical Engineering Conversion Program

For students with non-Chemical Engineering Degrees

Removal of Undergraduate Deficiencies

Equivalent of . . .

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<th>ChE 310</th>
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ChE 510 (Transport Phenomena) - 3 credits

ChE 596 (Research Methods) – 3 credits

ChE 527 (Thermodynamics) – 3 credits

CHE 529 (Kinetics) - 3 credits

9 additional credits in supporting courses as approved by advisor.

CHE 598 Seminar (1 credit) every semester.

ChE 700 (research credit) every semester – credit amount will vary per semester (at least 9 must be completed to meet graduation requirements.)

Submit program of study within second semester of enrollment.

Statement of Expectations

Students with a BS in chemistry or other scientific field who desire to obtain an advanced degree in Chemical Engineering are encouraged to consider the conversion program. This program enables such students to obtain a chemical engineering advanced degree with a minimal amount of extra effort.

The Conversion program is designed to accommodate individuals possessing degrees in chemistry. However, the program can also accommodate students with degrees in other scientific/engineering disciplines on an individual basis. Students seeking advanced degrees should complete the equivalent of the following undergraduate courses.
Ph.D. in Chemical Engineering

Admission and Qualification

The Voiland School does not administer a qualifying examination for admission into our doctoral program. A student holding a 4 year bachelor’s degree or the equivalent in chemical engineering or a related field is considered qualified for admission. A student who is currently in our M.S. program and who wishes to continue on into the Ph.D. degree, should make his/her intentions know to the School Director. The Chemical Engineering Graduate Studies Committee, will then meet to consider the request. The committee will evaluate, basing their decision primarily on the student’s performance in the graduate level chemical engineering courses and on evidence of research aptitude. A favorable decision by the committee will constitute an offer of admission into the Ph.D. program. If the decision is favorable the student must complete the Add an Academic Program/Degree Level form (found on the Graduate School website) http://gradschool.wsu.edu/facultystaff-resources/18-2/. Once this form has been processed by the Graduate School Office and an official acceptance has been awarded, the course and examination requirements for the Ph.D. degree will then come into effect.

Course Requirements

The Chemical Engineering faculty, recognizing that the Ph.D. degree is a research degree, holds to the minimum course requirements set by the WSU Graduate School. That is, 15 credits of graded course work beyond the B.S. degree in Chemical Engineering and a minimum of 20 credits in ChE 800 (research credit). Students must complete ChE 510, 596, 529, and 527 and one other supporting course approved by the graduate committee. The specific program of study is subject to approval of the student's Ph.D. committee and it is possible that the committee could require more than this minimum. Also, see policy concerning electron microscopy course (page 21). PhD students should submit a Program of Study by the end of their second semester of enrollment. This form can be found at: http://gradschool.wsu.edu/facultystaff-resources/18-2/. Students may use not more than six (6) credits of graduate courses that were completed at another institution to meet a portion of the coursework requirement.

Graduate Course Offerings

Normally the department does not offer graduate courses in the summer. To facilitate the courses, they will be taught using videoconference technologies and delivered to Pullman, and the Tri-Cities Campus. Appendix D lists a description of all the departmental graduate level courses.
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TRANSFER CREDIT POLICY:

Students who have completed any of the courses listed on the program of study at other institutions may use up to 6 credits of such courses to be applied to the program of study. Students that plan on receiving credit for courses taken elsewhere must indicate this at the beginning of their residency to the Graduate Coordinator (No later than two weeks prior to the first day of the first semester). The student will bring all available materials to support their request for credit (for example transcript, syllabus, information on textbook used, description of the program where the course was taken, name and e-mail of the instructor) to a meeting with the instructor who was most recently teaching the respective course listed in the program of study, or his/her designee, for an oral review (a designee must be a Faculty member of VSCEB). This meeting will be scheduled by the Graduate Coordinator within two weeks following the student’s request for credit. The instructor or designee will interview the student regarding his/her knowledge and review any materials and information. The instructor/designee may administer a written and/or oral exam at their discretion. The instructor/designee will notify the Graduate Coordinator of the result of the meeting and deliberations, i.e., credit as requested by the Student including equivalent grade, or no credit, in a timely fashion so the student can enroll in on-campus courses as needed.

WRITTEN QUALIFIER EXAM

A written qualifier examination is required for students who have not earned at least a 3.5 GPA in all courses listed on the program of study that were completed at WSU or the UI, or credited from graduate courses taken elsewhere, except ChE 596. The qualifier exam will be given once a year (summer semester). The examination will consist of an open book exam, four hours in length. Candidates will answer four of the five questions from the general areas of: 1) Transport Phenomena, 2) Kinetics and Reactor Engineering, 3) Thermodynamics, 4) a topic selected by the student’s research advisory committee and 5) the student’s area of research. Students must earn a 75% to pass the exam. Those who do not pass the exam may submit an appeal to the Voiland School faculty asking to repeat the exam. The appeal must include an explanation of why the student did not pass the exam, the correct responses to all questions posed on the exam, and a description of how the student will prepare for a second exam, if the appeal is granted. If approved, a second exam will be given no less than 4 months and no more than 6 months after the first exam. Students who do not successfully pass the exam will be dismissed from the PhD program. Students who do not successfully pass the exam will be dismissed from the PhD program.
Ph.D. in Chemical Engineering

PRELIMINARY EXAM

Students who have passed the qualifier examination or have earned a 3.5 GPA or higher as defined above and who have completed all coursework outlined on the program of study will be allowed to take the preliminary examination. We expect that all students will complete the preliminary exam before the end of their second year of graduate studies at WSU.

To prepare for the exam, the student is expected to write a proposal that describes her/his planned research in sufficient detail that the work could be understood and implemented by others. This proposal should include a literature review, a hypothesis to be tested or research questions to be answered, a description of the specific aims or objectives, specific measurable outcomes, description of the methods to be used, and expected results and impacts. The proposal may build upon and update documents prepared by the student’s major professor which were used to obtain funding for the research, but should be updated and be more specific to the work to be conducted by the student than are the documents prepared by the major professor. In this way, the student will be able to clarify, take responsibility for, and learn to communicate his/her research program.

The proposal must be written in NSF or NIH format. It is the student’s responsibility to follow recent guidelines. The proposal must exhibit significant differences and advances in knowledge from any funded project proposal under which he/she may be working. The date of the exam will be determined by the dissertation committee members. Typically, this will be no more than 3 months after the student has completed coursework required for the PhD degree, thus receiving a waiver of the written qualifier exam, or the successful completion of the written qualifier exam. The student will then defend this proposal in an oral exam. Variation from this policy will require a written appeal from the faculty advisor and will only be considered in extenuating circumstances.

What will be evaluated during the preliminary exam?

- The mechanics of technical writing
- The impact of the project summary
- The extent to which the student demonstrates an understanding of the current literature and uses this literature to formulate the hypothesis, aims, and the methods.
- The extent to which the student clearly articulates the hypothesis and/or research
- The rigor and appropriateness of the experimental plan
- The extent to which the experimental plan will test the articulated hypothesis or will answer the research questions
- The student’s ability to describe his/her research in the context of the larger search questions and societal needs
**Ph.D. in Chemical Engineering**

**PROPOSAL WRITING EXPERIENCE REQUIREMENTS**

Whether continuing in academia or moving to industry, PhD graduates will be expected to write formal research and funding proposals. The faculty has identified a need to provide additional training to PhD candidates in this area. After the student has successfully completed the preliminary exam, the committee chair will identify and communicate to the student one or more opportunities to write either an independent proposal or to collaborate on a proposal. The committee chair can solely determine the required scope and format of the proposal, or the committee chair can further request comments and suggestions from the full committee. Prior to scheduling the final defense, the committee chair must submit a document that certifies to the Voiland School that the PhD candidate has received adequate training in proposal writing. This document should include at a minimum, the title of the proposal, the principal investor(s) of the proposal, the role of the student if he/she is not the PI, the agency for which the proposal was submitted, and a brief description of the PhD candidate’s contribution to the preparation/writing of the proposal. The final defense will not be scheduled prior to this certification by the committee chair. Additionally, if the proposal is independently written by the PhD candidate and proposes future work that the student has envisioned as a result of his/her doctoral education experience then it would be appropriate to add the proposal as the last chapter of the dissertation.

**DISSERTATION AND FINAL DEFENSE REQUIREMENTS**

The dissertation will contain multiple chapters that may include multiple published and/or submitted papers. Typically, the introduction chapter sets the context for subsequent chapters and explains the relationship among chapters. The last chapter of the dissertation will present proposed future work that the student has envisioned as a result of his/her doctoral education experience.

**DISSERTATION PREPARATION EXPENSES**

There are expenses associated with the preparation, duplication, and binding of your thesis. Unless these expenses are covered by a funded research grant (check with your major professor), **you are expected to cover these costs**. The department also requires that one copy of the thesis be bound and provided to the departmental office using the following specifications:

1. Bound in red sturdite
2. Full title of thesis, name and year on front
3. Name, degree (Ph.D.) and year on spine

There are several book binders in the area including the Bookie. See Appendix F in back for contact information.

- The committee will consider the student’s performance on the entire exam when determining whether the student has passed the preliminary examination
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15 graded credits / 72 credits total needed to achieve PhD degree

CHE 510 (Transport Phenomena) – 3 credits
CHE 596 (Research Methods) – 3 credits
CHE 529 (Chemical Kinetics) – 3 credits
CHE 527 (Thermodynamics) - 3 credits

3 additional credits in supporting graduate courses (500 level)
CHE 598 (Seminar) – 1 credit every semester
CHE 800 (Research) – variable credit every semester

Submit program of study within the second semester of enrollment.

Admission to Candidacy

A student must satisfy the following two requirements in order to be admitted to candidacy:

Pass a written qualifier examination (if GPA is below 3.5) based on the graduate courses taken. This examination is taken during the summer after a student has been accepted into the Ph.D. program.

Pass the preliminary (oral presentation) exam. We expect this exam to be taken before the end of a student's 2nd year of graduate enrollment at WSU.
Ph.D. in Engineering Science

Students pursuing a degree in the Ph.D. in Engineering Science who are mentored by Voiland School faculty, should complete a program of study form by the end of their second semester of enrollment. The Engineering Science program requires a minimum total of 72 credits to be listed on the program of study, to be eligible for degree completion. These credits are made up of a minimum of 15 credits of graded coursework beyond the bachelor’s degree, with the remaining credits for seminar and/or CHE 800 research credits. Students in Engineering Science, have the option of completing one of the following, to meet the program of study requirements:

- Complete 12 of the 15 graded coursework credits, using any course (s) with an engineering prefix OR,
- Complete 9 of the 15 graded coursework credits, using any course (s) with an engineering prefix, plus 3 credits of mathematics or statistics.

The specific program of study is subject to approval from the student’s Ph.D. committee, and it is possible that the committee could require the completion of more than the minimum number of coursework credits.
Semester Review of Graduate Students

In accordance with university policy, all students on appointment, whether they are RAs, TAs, Fellows or Scholars, must be reviewed on at least an annual basis. The Voiland School conducts a review of graduate students every semester (excluding summer). In addition to satisfying university regulations, it is good policy to have a formal feedback mechanism so that each graduate student can gauge the faculty’s perception of the progress that is being made on achieving degree objectives.

Because of this latter consideration, it is departmental policy to conduct a review of all enrolled graduate students, whether or not they are on appointment. The process begins with a self-evaluation by each graduate student. The student then gives this evaluation form to his/her major professor who completes the second portion of the evaluation and turns it in to the Academic Coordinator (Samantha Bailey). If, on the basis of this review, the student is deemed to be making satisfactory progress, he/she will receive written notice to this effect. If, on the other hand, there appear to be problems, a second stage of review will be undertaken. In this stage, the School Director will appoint a faculty committee of two members (excluding the major professor) to review the situation in more detail and to issue a fact-finding report together with recommendations. The graduate, as well as the major professor, will receive a copy of that report and appropriate action will be taken on the recommendations soon thereafter.
Departmental Policies

Use of the Copier
Your major professor may require that you make copies of journal articles, or for research purposes. ChEBE copiers are located in Wegner Hall Room 105 and 334. The ChEBE copier may not be used for making personal copies.

Thesis Preparation Expenses
There are expenses associated with the preparation, duplication, and binding of your thesis. Unless these expenses are covered by a funded research grant (check with your major professor), you are expected to cover these costs. The department also requires that one copy of the thesis be bound and provided to the departmental office using the following specifications:

1. Bound in red sturdite
2. Full title of thesis, name and year on front
3. Name, degree (M.S. or Ph.D) and year on spine

There are several book binders in the area including the Bookie. See Appendix F in back for contact information.

Seminar Attendance
Enrollment in the graduate seminar course, ChE 598, is required for all graduate students. Students are responsible for informing the department (prior to the seminar) if they cannot attend seminar for some legitimate reason. Unexcused absences from more than one seminar per semester will result in a failing grade for the course.

Allowable Credit for Electron Microscopy Course - E Mic 586
Students who require the use of the electron microscope in their thesis work often take E Mic 586. While students may enroll for as many credits as is necessary, only one credit of E Mic 586 can be applied to a student's graduate program.

Enrollment Policies
All students must be enrolled full-time, which the university considers as 10-18 credits. See page 8 to determine the number of credits in which you should enroll in. First-year students will normally take 3-4 lecture courses each semester (typically nine or twelve credits). All students should enroll for ChE 598 (Research Seminar) for one credit. Students should enroll for as many credits of ChE 700 (Master's Research) or ChE 800 (Doctoral Research) as necessary to reach the total recommended. Students not on appointment as teaching, research, or staff assistants, and enrolling solely for the purpose of completing theses or special problems and taking final examinations, must register for a minimum of two semester hours of 700, 702, or 800 credit at Washington State University during that semester or summer session.
Miscellaneous Information

Housing

Students interested in on-campus housing should contact WSU Housing Services at (509) 335-8625. Washington State law requires that graduate students who are university employees (RAs, TAs, etc.) must live in the state of Washington.

Parking

Parking permits are REQUIRED for you to park on campus. Students needing campus parking permits should contact Transportation Services which is located on the corner of Cougar Way and D Street. (509) 335-7275

Mail

Student mailboxes are located in Wegner 334. Official mail, messages, and notices for students will be deposited there. PLEASE CHECK YOUR MAIL FREQUENTLY. Personal mail and all publications should be addressed to your residence.

Ordering Equipment/Supplies

Nothing should be ordered unless approved by your advising professor. Students may obtain pricing information from vendors, but office personnel ONLY may process orders through the CEA Purchasing Center. Do not, under any circumstances, use your own money to purchase items for your research. Purchasing and Pre-Travel Request forms may be found on the CEA Website here: http://vcea.wsu.edu/faculty-staff/

Space is provided on the form for you to indicate if you need to have the goods shipped for 2-3 day or overnight delivery. Please be aware that expedited shipping can be very costly. Do not request 2-3 day shipping on every purchase request unless it is absolutely necessary or your advisor has instructed you to do so. Forms to request work to be done by the College Engineering Shops are also available. You will need to know which project is paying for the work on all purchase requests or shop work requests.

You will receive an email message when your order arrives. All orders are delivered to the main office, except for very large pieces of equipment and gas cylinders. When ordering large pieces of equipment and gas cylinders, an alternate delivery location should be provided on the purchase request. A packing slip will be attached to the outside of the box when you receive the order, you must sign the packing slip to verify you picked up the package.
Miscellaneous Information

Laboratory Safety

The importance of laboratory safety cannot be overemphasized. Unannounced inspections of departmental labs and shops are conducted periodically and mandatory general meetings dealing with safety problems are held every few months or more often as needed. Students who are uncertain about the hazards of the chemicals, biologics, materials, or equipment they are working with should consult a member of the School Safety Committee. Graduate students are also responsible for maintaining a neat and orderly laboratory. Supervisors/advisors are responsible for providing personal protective equipment, training, and equipment, training, and instruction about the hazards which may be encountered in one’s work. Everyone has a right to know what they are working with and the ability to do so safely. Everyone has the authority to shut down an unsafe laboratory or experiment until the defect can be addressed. Everyone has the responsibility to report hazards, incidents, and near-misses to the School Safety Committee so that we can eliminate preventable accidents and their detrimental impact on personnel as well as School efficiency. For questions on lab safety, please contact our Safety Office (Billy Schmuck), located in Wegner Hall Room 107N.

Checkout Procedures

Students completing their degrees must report to the School office to complete checkout procedures such as submitting a copy of the thesis, returning keys, and equipment, etc. A forwarding address should be left with the staff in the School Office.

Job Opportunities

Join our list serve to receive job postings/advertisements related to engineering fields:

CHEBE_PHD_OPPORT@lists.wsu.edu

Join our list serve to receive job postings/advertisements related to engineering fields:

CHEBE_PHD_OPPORT@lists.wsu.edu
## Faculty

<table>
<thead>
<tr>
<th>Name</th>
<th>Office</th>
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<td>Schmuck, Billy</td>
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<td><a href="mailto:bschmuck@wsu.edu">bschmuck@wsu.edu</a></td>
<td>Lab Safety Officer</td>
</tr>
</tbody>
</table>
Graduate and Professional Student Association Services

(GPSA)

The Graduate and Professional Student Association (GPSA) is the representative body for graduate and professional students at WSU. The GPSA's primary role is to provide academic and professional support services. Through active participation and membership in numerous national, state, and university organizations and committees, the GPSA seeks to provide graduate and professional students with representation and a forum to express their concerns. All graduate and professional students are encouraged to direct their concerns and questions to their respective Senators, District Representatives, or to the President and Vice President. The GPSA Senate, the legislative arm of the GPSA, includes all members of the Executive Committee and all GPSA Senators. Senators are elected within individual departments or programs, usually in August or September.

The GPSA is represented in numerous committees throughout the university that affect the academic and professional lives of students. Among a large number of important functions, these committees decide how student fees are spent, advise on the preparation of university budgets, and set university policy on many issues. Committees include Faculty Senate, Presidential, and University committees. GPSA also has several of its own committees.

The GPSA Study Center in Holland Library

The GPSA Study Center in Holland/New Library is provided for the benefit of all graduate and professional students at WSU. It is located on the ground floor and is equipped to broadly meet student demand. The Study Center contains 28 individual study spaces, three study tables, and a number of computers as well as a scanner, CD-rewritable disk drive, color printer, and laser printer. There is also a copy machine available in the Study Center. There is no charge for use of any equipment, except for printing and copying. Access the Center using your Cougar Card.

Inter-Library Loans

Research projects often require books, journals, or articles that the WSU libraries do not own, but can borrow for you from another institution. As long as you are not requesting a rush on the arrival of your material the GPSA fully subsidizes the cost of basic interlibrary loans. The library will automatically waive the fee if you are a Graduate or Professional student.

TA Excellence Awards

GPSA’s Teaching Assistant Excellence Award program was instituted to encourage a crucial role played by graduate students at WSU. Of the less than 1400 graduate students, approximately two-thirds are involved in teaching classes to undergraduate/professional students. In an effort to encourage teaching excellence, GPSA organizes the TA Excellence Awards each year. A total of ten awards are given, five to TAs who independently instructed lecture sections and five to TAs who performed supportive duties such as grading, teaching lab sections, or leading tutorials. The awards are based on nominations from departments, faculty members, colleagues, and students. Winners will receive an Award of Excellence plaque in addition to being recognized at the GPSA’s annual awards luncheon.

Travel Grants

The travel grants are available to help defray transportation costs to help students in scholarly activity, research, and in the presentation of papers at significant professional meetings. Travel grants are funded from the GPSA budget and to a certain extent from funds made available by the Graduate School. For more information contact the GPSA.
Commonly Used Resources

Counseling Services

WSU Counseling Services offers individual counseling for regularly enrolled WSU students and student couples free of cost. There are also group sessions offered which allow students the opportunity to interact with others who face similar problems and in the process, to receive group support and to develop more satisfying relationships. Some of the groups regularly offered by Counseling Services include an international Chat Group, a Dissertation Support Group, Test Anxiety Workshops and Group, and a Stress Management Group. Information shared with a counselor remains confidential according to Washington law and the ethical code of the American Psychological Association. You can make an appointment at Counseling Services, Room 280, Lighty Student Services Building or by calling 335-4511. Counseling is available each weekday. Emergency consultations in the evenings or on weekends can be arranged.

Health and Wellness Services

Health and Wellness Services offers a broad range of professional services to WSU students. Their clinicians are both care providers and teachers. Not only do they regard each patient encounter as an opportunity to affect your health, attitudes, and behaviors, but they are also involved in the education of paramedical students in a variety of areas. Their Wellness Resource Center offers in-house and outreach programs. The peer-to-peer model is used to address concerns regarding alcohol and drug overuse, sexuality issues, nutrition, and fitness. The close working relationship between Health and Wellness Services and Counseling Services permits timely, integrative, and comprehensive treatment when you experience difficulties that require both medical and psychological intervention. Though these two agencies are administered separately, they define themselves as a uniform health care team for the purposes of consultation, referral, and information sharing. Health and Wellness is located in the Washington Building, phone 335-3575.

Housing

The ASWSU Housing Commission offers free referral services to find housing. They are located in the CUB, room 312, or you can call 335-9574.

Global Services

The Office of Global Services has a number of resources for international students. Their foreign student advisors are available to help with questions and problems that may be encountered while adjusting to life at WSU. International Programs publishes a handbook containing information specific to foreign students and scholars not included in the general university handbooks. They also provide a number of services that are useful for international students such as those listed below. Their office is located in Bryan Hall room 206 and the phone number is 509.335.2541.

International Students and Scholars Section of the Global Services Office

The primary function of the International Student and Scholar section is to provide relevant support services to foreign students and scholars in achieving their educational objectives; groups in promoting intercultural understanding; and departments in hiring foreign faculty and staff. To assist WSU's foreign students, scholars, and their accompanying family members in accomplishing their purposes for being at the university, this program provides service in matters other than academic advising. In general, the faculty members furnish of Labor and of State; in understanding U.S. mores and culture; and in
obtaining information and support from appropriate sources within and outside the university. To promote intercultural understanding, the International Students and Scholars office works with university and local community groups in arranging opportunities for interaction between Americans and foreign students and scholars.

**Intensive American Language Center (IALC)**

The IALC prepares students to communicate in English in order to study in American colleges and universities. The six-level program offers a full-time intensive language study, in which students study the four language skills—speaking, listening, reading, and writing—within a variety of content areas. Another focus of the IALC is to provide students with information about the American people and life in the United States.

**Student Legal Services**

Student Legal Services is provided by the ASWSU to make legal advice and information available to WSU students either free of charge or at a reduced cost. Student Legal Services will occasionally sponsor seminars and workshops on judicial processes, provide brochures, books, and journals containing information about legal rights and responsibilities and they may obtain discounts for you with local attorneys. For more information, Call Student Legal Services at 335-9539 This service may not be available during the summer months.

**Brelsford Visitor Center, Your Gateway to Washington State University**

The Visitor Center is a place to interact with exhibits that illustrate the university’s unique history and the many contributions WSU faculty, students, and alumni have made to Washington, the United States, and the world. The friendly staff will help visitors find information to make their visits convenient and productive. At the Visitor Center you can:

- Receive directions to campus locations
- Pick up a campus map
- Purchase a parking permit
- Meet colleagues or hosts
- Leave information for someone else
- Obtain event information
- Visit friends
- Relax before starting your busy day on campus
Information Sheet For Committee Members & Students
Planning Final Examinations

This document provides general guidelines for successful completion of an advanced degree. Students planning to take the final oral defense of their dissertation or thesis should obtain a copy of the Deadlines and Procedures for Graduate Degrees the semester before they expect to graduate. An Application for Degree must be submitted to the Graduate School according to the schedule on the Deadlines. Submission of the Application for Degree will require payment of the graduation fee. An approved Program of Study must be on file in the Graduate School before the Application for Degree may be filed. Candidates may not schedule a final examination until an Application for Degree has been submitted.

Scheduling your final exam (10 working days before defense):

Students preparing to schedule the final defense of their dissertation or thesis must obtain the Dissertation/Thesis Acceptance/Final Examination Scheduling form from the Graduate School website. The following items will be checked for final acceptance at the Graduate School:

1. Ten working days prior to final examination defense date, submit to the Graduate School a completed, signed “Final Examination Scheduling Form” http://gradschool.wsu.edu/facultystaff-resources/18-2/ and a preliminary, complete digital copy of the dissertation/thesis. Thesis candidates should send their draft to gradschool@wsu.edu. Doctoral candidates submit the digital draft to UMI/ProQuest (http://www.dissertations.wsu.edu). Doctoral students will choose their publishing/copyright options and pay the appropriate fees to UMI/Proquest at this time.

2. Candidates planning to write a dissertation or thesis should consult with their committee to determine the particular format acceptable in their departments. Because a standard style for the body of the dissertation/thesis has not been agreed upon by scholars across disciplines, each department may be governed by a particular style manual. Because many formats are in use presently, one should be chosen and followed carefully. It is important to remember that the Graduate School does not make an editorial check of dissertations and theses. Dissertation and Thesis format template can be found on the Graduate School website under Thesis and Dissertation Formatting and Submission Guidelines: http://gradschool.wsu.edu/facultystaff-resources/18-2/

3. The type of degree, the date of degree to be awarded, and the granting department on the dissertation/thesis must agree with the information on the Announcement of Orals. Committee names must also agree. In addition, the title on the title page and the student’s name on the title page must agree word-for-word with the title and name on the abstract page.

4. The total number of words in the body of the abstract must not exceed 350.

5. Verification that the student has received approval for use of human subjects or animals in research is required before scheduling the final examination. Please attach a copy of the approval form to the final exam scheduling form.
Information Sheet For Committee Members & Students
Planning Final Examinations

6. **Do not** follow the format of someone else's dissertation/thesis. This includes copies in the library. You may be copying their mistakes, and/or rules may have changed.

7. The Graduate School will perform the format check electronically and provide guidelines to students when scheduling their final defense.

**FINAL SUBMISSION (5 working days following successful defense)**

All institutions require that doctoral dissertations be published, and University Microfilms, International (UMI)’s ProQuest Dissertations & Theses Database is the recognized repository for dissertations. Washington State University has long subscribed to UMI to serve as the publisher, cataloger, and marketer of doctoral dissertations. Please visit the ProQuest website for more information: [www.proquest.com](http://www.proquest.com)

Students are given two publishing options: The Traditional Publishing option, which is fee, and the Open Access option, which has a fee associated with it. A publishing option guide, which explains these two options in detail, can be downloaded form the ProQuest website: [http://www.proquest.com/products-services/dissertations/](http://www.proquest.com/products-services/dissertations/). With either option, the student retains his/her copyright to the dissertation. ProQuest also offers an optional service in which they will register the student’s copyright with the U.S. Copyright Office for an additional fee. Students may also request a publishing embargo, if needed.

For more information on the final submission of your dissertation or theses, please review the Graduate School’s Policies and Procedures website, Chapter 6: [http://gradschool.wsu.edu/chapter-six-h/](http://gradschool.wsu.edu/chapter-six-h/)
Campus Contact Information

**Center for Advising and Career Development**
PO Box 641061
Pullman, WA  99164-1061
509-335-2546
http://cacd.wsu.edu/

**Office for Equal Opportunity**
225 French Administration Building
PO Box 641022
Pullman, WA  99164-1022
509-335-8288
(fax) 509-335-5483
http://chr.wsu.edu

**Voiland College of Engineering and Architecture**
Dana 146
PO Box 642714
Pullman, WA  99164-2714
509-335-5595
www.cea.wsu.edu

**GPSA**
(Graduate and Professional Student Association)
Washington State University
Pullman, WA  99164-7204
509-335-9545
(fax) 509-335-9530
http://gpsa.wsu.edu

**Graduate School**
324 French Administration Building
Washington State University
Pullman, WA  99164-1030
509-335-6424
(fax) 509-335-1949
http://gradschool.wsu.edu/

**Office of Financial Aid**
380 Lighty Student Services Bldg
Pullman, WA  99164
590-335-4531
(fax) 509-335-1208
http://finaid.wsu.edu/
APPENDIX A

Laboratory Rotation Selection Form

This form should be used in submitting your laboratory rotation choices. As you interview each faculty member, obtain his/her initials in the appropriate column. All faculty must be interviewed.

STUDENT NAME: _______________________________________________________________________________

<table>
<thead>
<tr>
<th>FACULTY NAME</th>
<th>OFFICE #</th>
<th>EMAIL:</th>
<th>INITIALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beyenal, Haluk</td>
<td>Wegner 305B</td>
<td><a href="mailto:beyenal@wsu.edu">beyenal@wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Dong, Wenji</td>
<td>Wegner 340G</td>
<td><a href="mailto:wdong@vetmed.wsu.edu">wdong@vetmed.wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Ha, Su</td>
<td>Wegner 215</td>
<td><a href="mailto:suha@wsu.edu">suha@wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Ivory, Cornelius</td>
<td>Wegner 111</td>
<td><a href="mailto:cflivory@wsu.edu">cflivory@wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Kostyukova, Alla</td>
<td>Wegner 340D</td>
<td><a href="mailto:alla.kostyukova@wsu.edu">alla.kostyukova@wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Kruse, Norbert</td>
<td>Wegner 155A</td>
<td><a href="mailto:norbert.kruse@wsu.edu">norbert.kruse@wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Lin, David</td>
<td>Wegner 211</td>
<td><a href="mailto:davidlin@wsu.edu">davidlin@wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Lin, Hongfei</td>
<td>Wegner 109</td>
<td><a href="mailto:hongfei.lin@wsu.edu">hongfei.lin@wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>McEwen, Jean-Sabin</td>
<td>Wegner 257</td>
<td><a href="mailto:js.mcewen@wsu.edu">js.mcewen@wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Pfommm, Peter</td>
<td>Wegner 309</td>
<td><a href="mailto:peter.pfrom@wsu.edu">peter.pfrom@wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Saunders, Steve</td>
<td>Wegner 213</td>
<td><a href="mailto:steven.r.saunders@wsu.edu">steven.r.saunders@wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Van Wie, Bernie</td>
<td>Wegner 311</td>
<td><a href="mailto:byanwie@wsu.edu">byanwie@wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Vasavada, Anita</td>
<td>Wegner 209</td>
<td><a href="mailto:vasavada@wsu.edu">vasavada@wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Wang, Yong</td>
<td>Wegner 153</td>
<td><a href="mailto:wang42@wsu.edu">wang42@wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Wu, Di</td>
<td>Wegner 107</td>
<td><a href="mailto:d.wu@wsu.edu">d.wu@wsu.edu</a></td>
<td></td>
</tr>
</tbody>
</table>

LAB ROTATION CHOICES: Fill in project name and faculty member in ranking order: 1 = first choice......5 = last choice

<table>
<thead>
<tr>
<th>FACULTY NAME</th>
<th>PROJECT NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
CHOOSING A RESEARCH GROUP
(Information provided by The National Academy of Sciences)

When a graduate student or postdoctoral fellow is deciding whether to join a research group, gathering information about the group and its leaders is valuable in helping that individual arrive at a good decision. Sometimes this information can be acquired from written materials, from conversations with current or previous students or postdoctoral fellows in the group, or by asking the senior researcher directly. This may help to determine whether you are really interested in the research that the group is or will be pursuing. Among the useful questions that could be asked are the following:

- Who oversees the work of beginning researchers?
- Will a research adviser also serve as a mentor? If so, what is that person’s mentoring style?
- What role does a trainee have in choosing and developing a project?
- How long do graduate students or postdoctoral fellows typically take to finish their training?
- What are the sources of funding for project, and is the funding likely to be disrupted?
- Do beginning researchers participate in writing journal articles, and how are they recognized as authors?
- How much competition is there among group members and between the group and other groups?
- Are there potential dangers from chemical, biological, or radioactive agents? If so, what training is offered in these areas?
- What are the policies regarding ownership of intellectual property developed by the group?
- Are graduate students and postdoctoral fellows discouraged from continuing their projects when they leave?
- Are graduate students and postdoctoral fellows encouraged and funded to attend professional meetings and make presentations?
- Are there opportunities for other kinds of professional development, such as giving lectures, supervising others, or applying for funds?
## APPENDIX C

### Graduate Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ChE 510</td>
<td>Transport Processes</td>
<td>3</td>
<td>Transport of mass energy and momentum; steady states as applied to chemical processing; macroscopic and microscopic analyses.</td>
</tr>
<tr>
<td>ChE 527</td>
<td>Advanced Chemical Engineering Thermodynamics</td>
<td>3</td>
<td>Equilibria in physical and chemical systems generalized prediction of thermodynamic properties, non ideal systems.</td>
</tr>
<tr>
<td>ChE 529</td>
<td>Chemical Engineering Kinetics</td>
<td>3</td>
<td>Interpretation of kinetic data and design of non ideal chemical reactors; fundamentals of heterogeneous catalyst preparation, characterization, and theory.</td>
</tr>
<tr>
<td>ChE 549</td>
<td>Biochemical Conversion Lab</td>
<td>2</td>
<td>Analytical techniques in biomass characterization; bioproduct/biofuel production from renewable biomass including biochemical processes.</td>
</tr>
<tr>
<td>ChE 560</td>
<td>Biochemical Engineering</td>
<td>3</td>
<td>Chemical engineering applied to biological systems; fermentation processes, biochemical reactor design, downstream processing, transport phenomena in biological systems, biochemical technology.</td>
</tr>
<tr>
<td>ChE 574</td>
<td>Protein Biotechnology</td>
<td>3</td>
<td>Biotechnology related to the isolation, modification, and large scale commercial production, patenting and marketing of useful recombinant proteins and products. Cross listed with MBIOS 574, recommended preparation MBIOS 513</td>
</tr>
<tr>
<td>ChE 581</td>
<td>Advanced Topics in Chemical Engineering V</td>
<td>1-3</td>
<td>May be repeated for credit; cumulative maximum 9 hours. Filtration, reaction engineering, two-phase flow, non-Newtonian fluids, interfacial phenomena, fluidization, novel separations, biomedical engineering.</td>
</tr>
<tr>
<td>ChE 585</td>
<td>Interfacial Phenomena</td>
<td>3</td>
<td>Chemical and physical nature of the interface including the molecular basis for interfacial forces and resulting macroscopic phenomena.</td>
</tr>
<tr>
<td>ChE 596</td>
<td>Research Methods &amp; Communications</td>
<td>3</td>
<td>Course seeks to establish sound practices for graduate research and presentation of results. Techniques used for performing thorough literature searches and establishing and testing research hypotheses.</td>
</tr>
<tr>
<td>ChE 598</td>
<td>Research Seminar</td>
<td>1</td>
<td>May be repeated for credits. Seminar presentations on current topics in chemical engineering research. S, F grading.</td>
</tr>
<tr>
<td>ChE 700</td>
<td>Master’s Research, Thesis, and/or Examination V</td>
<td>1-18</td>
<td>May be repeated for credit. S or U grading.</td>
</tr>
<tr>
<td>ChE 702</td>
<td>Master’s Research, NON-Thesis, and/or Examination V</td>
<td>1-18</td>
<td>May be repeated for credit. S or U grading.</td>
</tr>
<tr>
<td>ChE 800</td>
<td>Doctoral Research, Dissertation, and/or Examination V</td>
<td>1-18</td>
<td>May be repeated for credit. S or U grading.</td>
</tr>
</tbody>
</table>
APPENDIX D

Student Learning Outcomes

To enable students to develop as successful professionals for highly competitive positions in industry, government, and academia

- To achieve mastery of the knowledge in their fields and the ability to apply associated technologies to novel and emerging problems

- To present research to local, regional, national, and international audiences through publications in professional journals and/or conference papers given in a range of venues, from graduate seminars to professional meetings

- To participate in appropriate professional organizations.

- To broaden their professional foundations through activities such as: teaching, internships, fellowships, laboratory rotations and grant applications

To prepare students to be effective researchers in the field of chemical engineering

To enhance the national visibility of the doctoral programs in chemical engineering and bioengineering

- To attract, retain and graduate high-quality students

- To enhance doctoral education by offering advanced courses, providing support such as fellowships, research funds, and travel to conferences

- To attract, retain, and advance research-active faculty

- To provide regional, national, and international opportunities for collaboration
APPENDIX E

LISTS OF ACCEPTABLE DOCUMENTS
All documents must be UNEXPIRED

Employees may present one selection from List A
or a combination of one selection from List B and one selection from List C.

<table>
<thead>
<tr>
<th>LIST A</th>
<th>LIST B</th>
<th>LIST C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Documents that Establish Both Identity and Employment Authorization</td>
<td>Documents that Establish Identity</td>
<td>Documents that Establish Employment Authorization</td>
</tr>
<tr>
<td>1. U.S. Passport or U.S. Passport Card</td>
<td>1. Driver’s license or ID card issued by a State or outlying possession of the United States provided it contains a photograph or information such as name, date of birth, gender, height, eye color, and address</td>
<td>1. A Social Security Account Number card, unless the card includes one of the following restrictions:</td>
</tr>
<tr>
<td>2. Permanent Resident Card or Alien Registration Receipt Card (Form I-551)</td>
<td>2. ID card issued by federal, state or local government agencies or entities, provided it contains a photograph or information such as name, date of birth, gender, height, eye color, and address</td>
<td>(1) NOT VALID FOR EMPLOYMENT</td>
</tr>
<tr>
<td>3. Foreign passport that contains a temporary I-551 stamp or temporary I-551 printed notation on a machine-readable immigrant visa</td>
<td>3. School ID card with a photograph</td>
<td>(2) VALID FOR WORK ONLY WITH INS AUTHORIZATION</td>
</tr>
<tr>
<td>4. Employment Authorization Document that contains a photograph (Form I-766)</td>
<td>4. Voter’s registration card</td>
<td>(3) VALID FOR WORK ONLY WITH DHS AUTHORIZATION</td>
</tr>
<tr>
<td>5. For a nonimmigrant alien authorized to work for a specific employer because of his or her status:</td>
<td>5. U.S. Military card or draft record</td>
<td>2. Certification of Birth Abroad issued by the Department of State (Form FS-545)</td>
</tr>
<tr>
<td>a. Foreign passport; and</td>
<td>6. Military dependent’s ID card</td>
<td>3. Certification of Report of Birth issued by the Department of State (Form DS-1350)</td>
</tr>
<tr>
<td>b. Form I-94 or Form I-94A that has the following:</td>
<td>7. U.S. Coast Guard Merchant Mariner Card</td>
<td>4. Original or certified copy of birth certificate issued by a State, county, municipal authority, or territory of the United States bearing an official seal</td>
</tr>
<tr>
<td>(1) The same name as the passport; and</td>
<td>8. Native American tribal document</td>
<td>5. Native American tribal document</td>
</tr>
<tr>
<td>(2) An endorsement of the alien’s nonimmigrant status as long as that period of endorsement has not yet expired and the proposed employment is not in conflict with any restrictions or limitations identified on the form.</td>
<td>9. Driver’s license issued by a Canadian government authority</td>
<td>6. U.S. Citizen ID Card (Form I-197)</td>
</tr>
<tr>
<td>6. Passport from the Federated States of Micronesia (FSM) or the Republic of the Marshall Islands (RMI) with Form I-94 or Form I-94A indicating nonimmigrant admission under the Compact of Free Association Between the United States and the FSM or RMI</td>
<td>For persons under age 18 who are unable to present a document listed above:</td>
<td>7. Identification Card for Use of Resident Citizen in the United States (Form I-179)</td>
</tr>
<tr>
<td></td>
<td>10. School record or report card</td>
<td>8. Employment authorization document issued by the Department of Homeland Security</td>
</tr>
</tbody>
</table>
APPENDIX F

Bookbinding Vendors for Thesis & Dissertations

- Arts & Crafts Book Manufacturing
  618 E. 2nd Ave.
  Spokane, WA 99202
  Phone: 509-747-3818

- Book Tinker
  1711 Bryant Ave.
  Walla Walla, WA 99362
  Phone: 509-592-9450

- Copy Court
  1295 Flannigan Creek Rd.
  Viola, ID 83872
  Phone: 208-882-5680
  Email: copycourt@copycourt.net

- Inland Bindery Inc.
  2716 North University Rd.
  Spokane Valley, WA 99206
  Phone: 509-927-1882
  Email: quote@inlandbindery.com

- J & H Printing
  223 E. Main St.
  Pullman, WA 99163
  Phone: 509-332-0782
  Email: jhprinting@pullman.com
  Website: jhprintingonline.com

- J & S Bindery
  202 S. Saint Boniface St.
  Uniontown, WA 99179
  Phone: 509-229-3363

- Steeley Printing & Book Binding
  201 C Street
  Lewiston, ID 83501
  Phone: 208-746-7599