Department of Chemical and Biochemical Engineering

GRADUATE STUDENT HANDBOOK
(Updated September 2010)
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I. INTRODUCTION
The Chemical and Biochemical Engineering Department at the University of Iowa (UI) has a long and distinguished history in chemical engineering education and research. Chemical engineering has been taught at UI since 1905 and was accredited in 1926 (it was among the first 16 schools to receive accreditation). The department is accredited by ABET and is one of the best Biochemical Engineering Programs in the nation. The department has thirteen tenure track faculty with research interests in three major areas: polymerization, environmental systems and biological systems. All graduate degrees in Chemical and Biochemical Engineering are awarded by the Graduate College. Undergraduate degrees are awarded by the College of Engineering. The faculty has appointments in both colleges.

The department has multiple types of graduate programs, including a combined BS/MS program, a non‐thesis Master’s program, and Master’s with thesis and Ph.D. programs. This document includes information on all of these types of graduate education.

This handbook is intended to inform graduate students of the policies, regulations and procedures of the graduate program in Chemical and Biochemical Engineering. In addition, it provides guidance regarding the academic performance, research excellence and general standards of conduct expected of students pursuing a Master of Science or Doctor of Philosophy degree in this department. Since this handbook is concerned primarily with acquainting you with departmental regulations, the general regulations of the Graduate College are not repeated in this handbook. Graduate students are expected to independently familiarize themselves with all Graduate College regulations. If any of these policies, regulations, or procedures is found to be in conflict with those of the University or Graduate College, then those of the University or Graduate College will take precedence. Similarly, if any part of these policies, regulations, or procedures is found to be in conflict with Federal, State or municipal laws, or with the constitutions of the United States or the State of Iowa, then that part shall be automatically void.

The University of Iowa and the Department of Chemical and Biochemical Engineering admits, trains, and graduates students without regard to race, color, religion, age, disability, sex, associational preferences or national origin.

II. GRADUATE PROGRAMS AND DEGREES
The graduate program in the Department of Chemical and Biochemical Engineering provides qualified students with deeper and broader training than is possible at the B.S. level. Both the M.S. and Ph.D. programs are designed to equip the student with the skills to pursue a career in industry, academia, or government. All graduate students are expected to be competent in the core areas of chemical engineering. Students obtain more specialized knowledge and expertise through advanced course work in chemical engineering as well as in related disciplines. Excellence in research is expected of both Ph.D. and M.S. thesis students.

III. ADMISSION
A. Requirements and Procedures
Admission to the Department of Chemical and Biochemical Engineering is competitive and is based on an applicant’s previous course work, research and industrial experience. The general admission standards outlined below are intended to maintain the quality of the graduate program and to ensure that the student is properly prepared to successfully complete their graduate program in a timely fashion. Specific admission standards may be waived by the faculty when other evidence of competence is compelling. It should also be noted that these standards are minimum standards and
that meeting these standards does not ensure admission to the program. Admitted students typically exceed these standards:

- Applicants to the graduate program are expected to have a minimum cumulative grade point average of 3.00/4.00 with a B.S. degree in Chemical Engineering or a related science or engineering discipline.
- Applicants are required to submit the results of the Graduate Record Examination. The GRE Advanced Examination in Engineering is not required for admission to the program; however, these scores should be forwarded to the department if the Advanced Examination is taken. The GRE requirement is waived for University of Iowa students in the College of Engineering applying for the combined BS/MS program.
- Applicants who do not speak English as their native language are required to submit the results of the TOEFL examination. A minimum TOEFL score of 600 (250 for the computer test or 100 for internet based test) is ordinarily required.
- Applicants must arrange to have three evaluation letters forwarded to the department. These evaluation forms should be completed by persons who are well acquainted with the applicant and their ability to undertake graduate work in chemical engineering. The requirement for letters of recommendation is waived for University of Iowa students in the College of Engineering applying for the combined BS/MS program.

Conditional admission to the M.S. program may be granted to students with demonstrated ability, but who do not meet the requirements for regular admission. For students admitted with conditional status, regular status must be attained within two academic terms. A conditional admission will carry a written statement of deficiencies and the specific actions required to remove the conditions. The student is responsible for taking the steps needed to remove the conditions.

While the department will consider applications at any time, first consideration is given to students who have their application folders (application material, GRE and TOEFL scores and the required letters of recommendation) completed by January 15 for fall admission. Students seeking admission to the spring semester must have their admission folder completed by October 1.

The Director of Graduate Admissions (DGA) is responsible for overseeing the graduate recruiting activities and the graduate admissions procedures in the department. The DGA serves as the point of initial contact between prospective graduate students and the department and maintains a file of each qualified applicant in the department office. The DGA, in consultation with the graduate admission committee and DEO, screens the applicants and ultimately determines the applicants to be extended offers of admission.

B. Ph.D. Program

All students who are in the Ph.D. program in Chemical and Biochemical Engineering are required to pass the Ph.D. Qualifying Requirement and to provide evidence of superior ability to carry out independent research.
C. Applicants with B.S. Degrees not in Chemical Engineering

The department encourages students with degrees in other scientific disciplines, such as chemistry, biochemistry, biology, engineering, materials science, mathematics, and physics, to apply for admission to the graduate program. Many such students have successfully completed both M.S. and Ph.D. degrees. However, these students are expected to attain a proficiency in specified core areas of chemical engineering equivalent to entering graduate students who hold a B.S. degree in chemical engineering. The background of each student admitted to the program with a degree not in chemical engineering will be reviewed by the faculty. The graduate faculty adviser (the Director of Graduate Studies) will specify in writing any remedial courses which will be required of the student. Examples of core undergraduate courses include:

Mathematics
- Calculus (22M:031, 22M:032, or equivalent)
- Differential Equations (22M:41, 22M:034, or equivalent)
- Matrix Algebra (22M:40, 22M:033, or equivalent)

Chemistry
- General (4:011, 4:012, or equivalent)
- Organic (4:121, 4:122, 4:141 or equivalent)
- Advanced Sequence (Analytical Chem, Inorganic Chem, Biochemistry, or Physical Chem)

Chemical Engineering
- Process Calculations (52:041 or equivalent)
- Engineering Flow and Heat Exchange (52:151 or equivalent)
- Chemical Engineering Thermodynamics (52:103 or equivalent)
- Mass Transfer and Separations (52:161 or equivalent)
- Chemical Reaction Engineering (52:105 or equivalent)

The courses numbered 100 level or above may be used to satisfy credit and course requirements for a graduate degree in this department.

IV. TERMS AND DEFINITIONS

Good standing – a student status as defined by the Manual of Rules and Regulations of the Graduate College. Standing with respect to the Graduate College is determined by GPA.

Probation – a student status as defined by the Manual of Rules and Regulations of the Graduate College. Students not in good standing with respect to the Graduate College are on probation.

Meeting expectations – a student status within the Chemical Engineering Department, achieved by students who simultaneously meet four criteria: "good standing" within the Graduate College, "satisfactory performance", "normal progress", and "appropriate professional conduct". The terms "satisfactory performance", "normal progress", and "appropriate professional conduct" are defined in section VIII on student evaluation.

Not meeting expectations – a student status within the Chemical Engineering Department, applied to any student failing to meet one or more criteria from the following list: "good standing" within the Graduate College, "satisfactory performance", "normal progress", and "appropriate professional conduct".

Core Course GPA – the average (on a 4 point scale) of grades in courses the approved core course list, with the exception of Reaction Engineering 52:105. If multiple core courses are taken within a subject
area or if courses are repeated, the Department faculty reserves the right to determine which courses are included in the average. Core courses not taken at the University of Iowa are typically not included in the GPA calculation, although they may be included at the discretion of the faculty.

_GPA in approved graduate courses_ – the average (on a 4 point scale) of grades in courses used to satisfy the chemical engineering coursework requirement, excluding seminars and grades in independent research.

_In residence_ - the student is making demands on departmental or University facilities and resources (i.e., using faculty time, office space, laboratory space, computer resources, shop facilities, etc.). “In residence” status is based on use of University resources and not on whether the student is living in the Iowa City area. Students working remotely or completing research off site can be in residence.

_Full time registration_ – Nine semester hours in a regular semester constitute full-time registration.

**V. ADVISING AND PROGRAM PLANNING**

_A. Faculty Advisor_

The graduate student research supervisor also serves as the student’s academic advisor. For non-thesis M.S. students, an academic advisor will be assigned by the Director of Graduate Studies. The faculty advisor evaluates the performance and progress of his/her advisees. The faculty advisor serves as a teacher and mentor to the graduate student. It is through this close sharing of responsibilities and common goals that the graduate student learns to become an independent investigator.

Initially, the Director of Graduate Studies will orient the student to the policies and procedures of the department and assist the student in adjusting to graduate student life. Within the first month or so of joining the program, new graduate students are required to discuss their research interests and objectives with each faculty member. At the end of this period, each student will inform the Director of Graduate Studies of his/her top three choices for their faculty advisor. Final assignment of the student to a faculty advisor is based on the mutual interests of the student and the faculty, current research commitments, and departmental obligations. The department chair, in consultation with the faculty, is responsible for making the assignment of each graduate student’s research advisor.

_B. Examining Committee_

In addition to the faculty advisor, each student has an examining committee. The examining committee assists the student in their graduate studies, evaluates his/her progress, administers examinations, and approves the M.S. thesis or Ph.D. dissertation. The Department employs thesis committees (also called dissertation committees) for M.S. thesis and Ph.D. students. Members of thesis committees are selected on a case-by-case basis and are specific to the student in question. A M.S. thesis committee normally consists of three members. A Ph.D. thesis committee normally has five members, one of which must be from outside the department.

The Department also uses a standing graduate examination committee, which consists of the Director of Graduate Studies, Director of Undergraduate Studies, and one or two additional members appointed by the chair. The standing graduate examination committee is the examination committee for non-thesis M.S. students, and for students who have not yet formed their thesis committee.

The thesis committee plays an important role in advising the student in their graduate studies. It is therefore important that thesis committees be selected carefully. The graduate student and the faculty adviser together should identify committee members willing to serve on the committee and who meet Graduate College requirements. The names of these faculty members are forwarded to the department.
Chair who then recommends the examining committee to the Dean of the Graduate College. The Dean of the Graduate College formally appoints the student committee.

VI. REQUIREMENTS FOR DEGREE

A. General
All students are required to satisfy the general requirements of the Graduate College appropriate for the degree they expect to be awarded. All graduate students must give an annual update to a faculty examination committee as described in the Progress Reports and Annual Meetings section. Students who are “not meeting expectations” are required to give the written and oral update to a faculty examination committee each semester. Students who do not give the required updates are subject to the withholding of research credit and/or reduction/termination of financial aid.

To ensure basic competence in chemical engineering, all graduate students must take at least one course, from a departmentally approved list, within their first four semesters in each of the core chemical engineering branches of transport processes, chemical thermodynamics, chemical reaction kinetics and technical communication. Approved courses include:

1. Transport Phenomena
   - 052:217 Transport Phenomena
   - 052:271 Transport Phenomena in Biomedical Engineering
   - 058:143 Computational Fluid and Thermal Engineering

2. Chemical Thermodynamics
   - 052:117 Intermediate Thermodynamics
   - Any 100 level or higher Statistical Thermodynamics Course

3. Chemical Reaction Kinetics
   - 052:175 Polymer Chemistry + Undergraduate Chemical Reaction Engineering
   - 052:108 Introduction to Biochemical Eng + Undergraduate Chemical Reaction Engineering
   - 052:236 Atmospheric Chemistry & Physics + Undergraduate Chemical Reaction Engineering

4. Technical Communication
   - 052:115 Intro to Lit Review and Technical Writing (registration number for MS non-thesis)
   - 052:215 Intro to Lit Review and Proposal Writing (registration number for MS thesis and Ph.D.)

All graduate students must also complete at least one course (3 sh, selected in consultation with the research advisor) in an area outside their own specialization area from the department’s specialization areas – Polymeric Systems, Environmental Systems, and Biological Systems. Finally, all graduate students are required to be teaching assistants at least twice during their residency (except for non-thesis M.S. candidates) so that they can learn the skills needed to train and educate others, an important distinction between the undergraduate and graduate degrees.

B. Requirement in Principles of Scholarly Integrity
All Ph.D. students and M.S. thesis students may optionally enroll in and complete the Graduate College’s course in Principles of Scholarly Integrity. The registration number is 650:270 (section 001) for Ph.D. students. The registration number is 650:270 (section 002) for thesis M.S. students. This is a 4 semester course for Ph.D. students (requiring approximately 10 hours of attendance per semester). It is a 2 semester course for thesis M.S. students. Please note that the first meeting of 650:270 is typically the week prior to the start of classes. In the fall of each year, 650:270 has a session on Publication Practices and Responsible Authorship which is prerequisite material for the spring course in Literature Review and Proposal Writing. The Director of Graduate Studies and the instructor of Literature Review and Proposal Writing will work with all students (including non-thesis M.S. students) anticipated to enroll in Literature
Review and Proposal Writing, so that they either participate in the 650:270, or achieve equivalent training through independent review of the materials from 650:270.

C. Master of Science Degree
A minimum of 30 semester hours of graduate credit is required for the M.S. degree with thesis. Of these 30 semester hours, at least 24 semester hours must be in approved graduate level course work and at least 6 semester hours must be in 52:199 M.S. Thesis Research. All M.S. candidates must demonstrate competence in research. M.S. students are required to have a graduate grade point average of 3.00/4.00 in order to graduate. In addition, the student must submit an acceptable M.S. thesis and pass the final examination. There is no foreign language requirement. Undergraduate courses (course numbers less than 100) may not be used to satisfy the 24 semester hour requirement. The graduate seminar 52:191 does not count toward the 24 semester hour requirement. Non-thesis M.S. candidates must satisfy the same requirements except the 6 semester hours of Thesis Research must be replaced with a cohesive course sequence approved by their academic advisor or the Director of Graduate Studies (DGS). Graduate students who receive assistantships, fellowships or other financial aid which was awarded to them with the assumption that they pursue an advanced degree with thesis, are not eligible to pursue the non-thesis M.S. degree. Non-thesis M.S. students will be required to complete the four core courses with a GPA for those courses exceeding 3.25. Students on the Ph.D. track must obtain a non-thesis M.S. by fulfilling the following requirements: 1) completing the non-thesis M.S. course requirements (30 semester hours of coursework); 2) one manuscript for peer-reviewed publication approved by the research advisor and 3) giving a departmental seminar.

Graduate students in the non-thesis M.S. option may petition for entry into the thesis M.S. program or the Ph.D.-track program by requesting a change of status through the Graduate College. The request will be reviewed by the Graduate Admissions Committee. If the Committee approves the request, then it will be forwarded to the faculty for final approval. Assignment to research advisors will be handled as if the student were a new graduate.

D. Doctor of Philosophy Degree
The Ph.D. degree is granted primarily on the basis of achievement rather than on the accumulation of semester hours of credit. Excellence in research is the principal requirement for the Ph.D. degree. It is expected that the Ph.D. dissertation research represent an original and significant contribution to the body of knowledge in the field. The Ph.D. candidate is expected to publish his/her research findings as refereed journal articles.

The Ph.D. candidate is normally expected to have completed three academic years of residence, or two years if he/she already holds a recognized M.S. degree. A minimum of 72 semester hours of approved graduate credit beyond the B.S. degree is required. Of the 72 semester hours, at least 30 semester hours must be in approved graduate level course work. This does not include undergraduate courses (course numbers less than 100). The Ph.D. student must have an overall minimum graduate grade point average of 3.25/4.00 in order to graduate. In addition, the student must pass the qualifying requirement, pass the comprehensive examination, submit an acceptable Ph.D. dissertation and pass the final examination. The Ph.D. candidate is reminded that these are minimum requirements. The faculty advisor and/or examining committee may impose in writing other requirements such as the completion of additional course work or the acquiring of specific skills. The actual amount of course work required is determined with the advice and consent of the faculty advisor. There is no foreign language requirement.
E. Examinations

1. Ph.D. Qualifying Requirement
All students on a Ph.D. track must pass the Ph.D. Qualifying Requirement within their first four semesters. The purpose of this qualifier is to determine the student’s proficiency at graduate level work. The requirement is satisfied if the GPA for the four core areas is 3.50 or better. Students who do not pass the Qualifying Requirement may petition to complete the Qualifying Requirement by an alternative method acceptable to the research advisor, the Ph.D. examination committee, and the departmental graduate faculty.

2. Ph.D. Comprehensive Examination
The general rules for the administration of the Ph.D. comprehensive examination are contained in the policies and procedures of the Graduate College. The comprehensive examination consists of a written dissertation research proposal and an evaluation of research progress by the dissertation committee. The proposal must be presented orally and is open to the public. The proposal should contain the plan of study and some preliminary results. A guideline for the proposal format is given in the Appendix of this document. See section VIII on required timelines for completion of the comprehensive exam. The comprehensive examination may be reported as satisfactory, satisfactory with reservations or unsatisfactory. Two or more unsatisfactory votes constitute a failure. A satisfactory with reservations report will state in writing the concerns of the committee and the specific courses, procedures or other requirements to be satisfied by the student. The examining committee will also specify in writing the time at which these requirements must be satisfied by the student. The comprehensive examination may be repeated once at the discretion of the examining committee.

3. Final Examination
The general rules for the administration of the final examination are contained in the policies and procedures of the Graduate College. The final examination is administered by the candidate’s committee and consists of an oral presentation by the candidate of their dissertation work. The final examination is a critical inquiry into the purpose, methods and results of the research and may include intensive examination in areas related to the investigation. Ph.D. and M.S. final examinations are open to the public. The final examination may be reported as satisfactory or unsatisfactory. Two or more unsatisfactory votes constitute a failure. The final examination may be repeated once at the discretion of the examining committee.

The final examination should be scheduled as early in the semester of graduation as possible in order to provide as much time to make the required corrections and additions to the thesis or dissertation that are required by the examining committee. In general, the final examination should be scheduled no later than two weeks before the final deposit deadline.
**F. M.S. Thesis and Ph.D. Dissertation**

One copy of the thesis or dissertation, complete and in final typed form, must be presented to the Graduate College for a check of formal characteristics before the final examination and not later than four weeks before the graduation date on which the degree is to be conferred (see the Graduate College Thesis Manual). After approval by the Graduate College and by the examining committee, one final copy of the M.S. thesis or two final copies of the Ph.D. dissertation must be deposited not later than ten days before graduation. The Ph.D. dissertation will be microfilmed. An abstract of the Ph.D. dissertation, not to exceed 350 words of text, is to be deposited with the dissertation. The abstract must be approved and signed by the dissertation advisor.

The Graduate College requires that the Ph.D. dissertation be made available to all members of the examining committee no later than two weeks before the date of the final examination. The department requires that the M.S. thesis be made available to all members of the examining committee no later than two weeks before the date of the final examination. In addition, the department requires that each student deposit two approved copies of the thesis or dissertation to the department properly hard bound, or with payment of the departmental binding fee. Students should also provide a soft bound copy of the approved thesis or dissertation to all members of the examining committee who request one. Photocopies of the thesis must be of high quality on 20-lb. weight paper. Photographs, micrographs and other graphics should be faithfully reproduced. Additional requirements are contained in the "The Thesis Manual" available from the Graduate College.

**G. Seminar**

All Ph.D. and M.S. thesis graduate students must enroll in Graduate Seminar (52:191) every semester that they are in residence except summer. Students failing to attend seminar regularly will receive a failing grade for the course. All non-thesis M.S. students are required to enroll in Graduate Professional Development seminar in their final two semesters. The 1 s.h. from these seminars does not count toward the semester hour degree requirements of approved graduate coursework. Exceptions to the seminar requirement must be approved in writing by the advisor.

**H. Registration Requirements - Ph.D. Post Comprehensive and M.S. Finals**

The Graduate College requires that students be registered in the final session in which the degree is awarded. In addition, Ph.D. candidates are required to be registered in each semester after passing the comprehensive examination until the degree is awarded. See section VIII for registration recommendations.

**I. Department Graduation Checklist**

After final deposit of the thesis or dissertation, the student must submit a completed Department Graduation Checklist to the department three days before the semester commencement exercises. Failure to submit a Graduation Checklist will result in a hold placed on your graduation records.

**Graduation Checklist**

**Department**

1. Deposit two copies of thesis or dissertation for binding and suitable bound copies for each committee member.
2. Pay departmental binding fee, unless the copies in item (1) are already properly hard bound.
3. Return all keys to department secretary.
4. Return all books and software to department library.
5. Return all U.O. equipment to U.O. laboratory.
6. Satisfy all financial debts to the department.
7. Provide a forwarding address.
Advisor and Laboratory

1. Make arrangements with advisor to assure that all originals (or copies if approved by advisor) of log books, laboratory manuals, experimental data, computer codes, etc. are turned in to the faculty advisor.
2. Submit an electronic copy of thesis to advisor.
3. Return all books, journals, papers and other items borrowed from advisor, except as agreed between the advisor and student.
4. Return all instrument operation manuals, safety instructions, procedures and maintenance records to advisor.
5. Return all supplies and equipment borrowed from other laboratories.
7. Report supplies that need to be ordered.
8. Leave all research equipment and chemicals, not in continuing use, in condition for indefinite storage or immediate disposal.

Note: Graduating students are not permitted to take any University supplies, manuals, handbooks or other items from the laboratory, except with permission from the responsible faculty member.

VII. FINANCIAL ASSISTANCE

A. General
It is the policy of the department to provide financial aid, subject to available resources, to eligible students so that they may devote their full energy and attention to the research and course work necessary for obtaining an education and completing the degree requirements. Although most financial aid is provided in the form of teaching and research assistantships where service to the University is required, the graduate student stipend is viewed primarily as financial aid rather than the remuneration for services rendered. In addition, the graduate assistantship provides an important educational opportunity for students to obtain experience in teaching and research. For this reason, all candidates for Ph.D. and M.S. with thesis are required to complete both teaching and research assistantships during the course of their graduate studies.

B. Sources of Support
The funds available for graduate assistantships are primarily through sponsored research contracts and grants obtained by faculty members. Other funds are provided to the department by the College of Engineering and the Graduate College. In general, there are no departmental funds for summer support. Therefore, summer support for students can only be provided from external funds. Consult your faculty advisor on matters regarding summer support.

C. Eligibility
As available funds permit, it is the policy of the department to provide or arrange financial assistance for each graduate student who is in meeting departmental expectations. Non-thesis M.S. students are not provided financial aid.

The University requires all first time teaching assistants whose first language is not English to be tested to assess their English speaking and comprehension skills and general suitability for teaching undergraduates before they are assigned assistantship responsibilities. All incoming graduate students are screened by the Director of Graduate Studies as to whether testing in English is required for certification of oral competency. Students who mark English as their first language on their application may be required to take testing. The tests are given each semester and summer session the week prior to registration by the Department of Linguistics. Students are given detailed information and instructions about the tests and are able to ask questions when they register to take the tests.
Full-time graduate students with outside employment are usually unable to devote the necessary time and effort to their research and course work. This results in unnecessary delays in completing the requirements for the degree, hurried or inferior research and an undistinguished thesis or dissertation. To ensure excellence in research, full-time graduate students appointed to positions of half-time or greater may not be employed outside the department. Students violating this provision will be ineligible for financial aid. Students who feel this provision causes unusual hardship may request an exception from the department. However, the nature and duration of the hardship must be fully documented and the student must be able to maintain "normal progress".

D. Duration of Eligibility
For students entering without previous graduate work, it is the policy of the department to continue support for up to five years for a Ph.D. student “meeting expectations” and two years for a M.S. with thesis student. For students entering with previous graduate work, the duration of support will be prorated (reduced) with respect to the student’s initial placement in the graduate program. It is to be emphasized that the uncertainty regarding the funding of graduate education by state and federal agencies makes it impossible to guarantee the level and duration of support for any student. Financial support during a sixth year in residence for a Ph.D. student (third year for M.S. student) meeting expectations may be arranged upon the recommendation of the student’s research advisor. Funding is subject to funds available after all other eligible students have been supported. Students who fail to maintain normal progress as defined in Section VIII will not be considered for sixth year (third year for M.S.) support. A Ph.D. student who has been supported for six years (or M.S. for three years) from sources provided or arranged by the department, or requiring departmental approval will not be further supported from such sources (including external research grants and contracts obtained by the research advisor). Exceptions to this policy will require a formal appeal by the student which must be approved by the faculty.

Students become ineligible for financial support from departmental funds 30 days after passing the final examination. Continued support for a time period up to the end of the semester may be provided by the faculty advisor through external research funds.

E. Assistantship Responsibilities

1. Research Assistantship Activities
Each student in the Ph.D. or M.S. with thesis graduate programs will participate in research activities of some type during each semester in residence except when the individual has been assigned an unusually demanding teaching assistantship. Research assistantship activities are intended to give the student direct and continuing experience in the actual research process from formulation of the study through collection and analysis of data and preparation of a scholarly paper. These activities are intended to facilitate the research progress and productivity of the faculty member and the research group with which the student is associated. The research performed under a research assistantship may or may not be related to the student’s thesis work. Since thesis research activities are concerned with matters of originality, creativity and excellence, they are not subject to the hours per week guidelines of the general assistantship requirements (Sec. IV.G).

2. Teaching Assistantship Activities
Each Ph.D. or “M.S. with thesis” graduate student in the department is expected to serve as a teaching assistant two different times during their graduate studies. Every effort is made to arrange T.A. assignments with due regard for other responsibilities the student may have. Since T.A. assignments directly affect the education of students, it is necessary that all duties be carried out in a timely and effective manner. All first time teaching assistants whose first language is not English must be evaluated for certification. Under the certification process, teaching assistantship
interaction with students may be restricted based on testing results. Non-thesis M.S. students may serve as a Teaching Assistant (with some limited financial aid) if approved by the department.

3. Other Appointments and Assignments

Students funded from project grants carry out their research assistantship in support of that particular project, but must meet the teaching (or alternative) requirement, either during periods when not assigned to the project or through concurrent effort. Specific responsibilities are specified at the time of appointment.

F. Absences

Unlike undergraduate students, Ph.D. or “M.S. with thesis” graduate students and faculty have research and/or teaching duties on a continuous basis including those periods when classes are not in session (e.g., winter and spring break). Graduate students receiving financial support must observe normal University business hours. At the very least, this means assistantship duties should be carried out during Monday through Friday, 9 a.m. to 5 p.m. Students must discuss the possibility of alternative working hours with the research director (R.A.) or the instructor (T.A.) in charge. The research director or instructor in charge should be notified of absences due to illness or family emergency as soon as possible. Graduate students should behave professionally, notifying colleagues and supervisors in advance of planned absences. Students absent for extended periods without approval will become ineligible for departmental financial aid. Graduate students may take paid leave or vacation as outlined by University guidelines. Current guidelines allow two (2) weeks of paid leave for academic year appointments and three (3) weeks of paid leave for fiscal year appointments. Typically, such vacation should be taken between academic semesters and must be approved by the student’s research advisor. Students cannot accumulate vacation from year to year (use it or lose it).

G. Assignment

The awarding of financial support is made by the department at the beginning of each semester. The department recognizes primarily two levels of assistantship activities—¾-time and ½-time. One-half time assignments require about 20 hours per week and ¾-time about 10 hours per week. Specific assistantship assignments are made each semester. For teaching assistantships, the T.A. will be notified as early as possible, in writing, of the course(s), the instructor in charge, beginning and ending date of the teaching appointment and the duties to be carried out. For research assistantships involving research not related to the student’s thesis work, the R.A. will be notified as early as possible, in writing, of the project(s), the research director, the beginning and ending date of the research appointment and the duties to be carried out. For research assistantships involving thesis work, the graduate student is supervised by his faculty advisor until the completion of all degree requirements.

In the assignment of financial support, due consideration is given to the interests and capabilities of the students. However, it is necessary to weigh this against the needs of the department and the requirements of the various funding agencies which support departmental research activities. The department makes assignments according to the following procedures:

1. The department Chair presents a list of students eligible for financial support and a list of appointments available for faculty consideration.
2. Faculty members with external research support inform the Chair of the student(s) to be supported from their research grants.
3. The remaining students are assigned to department teaching and research activities. The faculty reviews the progress of these students based on their semester progress reports and determines the eligibility and priority of each student. The faculty considers the following when making this determination: progress toward the degree objective, past performance as a T.A. or R.A. and service to the department. Inadequate progress toward the degree or substandard
performance on previous assignments will result in reduction or elimination of financial support. The student will not be eligible for support until he/she is able to perform at the required level of performance for one full semester.

4. In addition, preference is given to thesis students (a) with demonstrated excellence in research and/or academic performance, (b) those already receiving support, and (c) U.S. citizens and permanent residents.

H. Renewal and Termination

1. Renewals (Reappointments)

Appointments to assistantships or traineeships are for a fixed period, usually one academic year. Sometimes the appointment may be made for one semester or 11-12 months. Renewal of an appointment for a subsequent period is based on the evaluation of the faculty advisor and the collective judgment of the faculty concerning the student progress and professional conduct. It is emphasized that all renewals are contingent on the continued availability of state, federal, and project funds for student support.

2. Termination During the Term of an Appointment

A graduate student on an assistantship or traineeship may be dismissed during the term of that appointment due to loss of student status. A graduate student may be dismissed from an assistantship or traineeship appointment during the term of the appointment, without necessarily losing student status, for 1) any reason sufficient to dismiss a faculty member during the term of an appointment (see University Operations Manual, Section 20:290 Ethics; Section 20:267 Unfitness; and Appendix 720.9.1 Uniform Rules of Personal Conduct), or 2) failure to follow or implement properly and adequately reasonable instructions of the supervisor when such instructions are within the proper scope of the supervisor termination of an appointment for either of these two reasons are those described in Section 20:230 of the University Operations Manual.

I. Tax Status

The University is required by federal regulation to withhold income tax from money paid from University sources and from project grants. The University will provide an annual W-2 form showing the amount withheld. The tax status of these payments, in whole or in part, is subject to interpretation of the Internal Revenue Service Code. Each individual taxpayer bears the responsibility of filing an income tax report according to the individual's situation and applicable status.

J. Collective Bargaining Agreement

The terms and conditions of employment, including but not limited to wages and benefits, in this position are governed by a collective bargaining agreement between the Board of Regents, State of Iowa and UE Local 896/COGS, the union representing graduate teaching and research assistants at the University of Iowa. Copies of this collective bargaining agreement will be provided upon your appointment and may be viewed from the University web site: http://www.uiowa.edu/hr/relations.Cogs/cogs.html.

K. Special Requirements

To comply with the Immigration Reform and Control Act of 1986, the department and the University must verify the citizenship status or employment authorization of all persons hired after November 6, 1986. Each student employed by the department must present documents that verify his/her identity and eligibility for employment. A departmental authority must physically examine the documents and verify their authenticity and that they relate to the individual to be employed. Both the student and the department must complete the appropriate sections of Form I-9.
The following documents may be used to establish both identity and eligibility for employment: U.S. passport, a Certificate of U.S. Citizenship, a Certificate of Naturalization, an unexpired foreign passport with attached Employment Authorization and an Alien Registration Card with photograph.

The following documents may be used to establish identity only: State-issued driver’s license or personal identifying information such as name, sex, date of birth, height, weight, and color of eyes, a U.S. Military Card, Native American tribal documents, a school identification card with a photograph, a voter card, and an identification card issued by a federal, state, or local government agency.

The following documents may be used to establish employment authorization only: social security card other than one not valid for employment purposes, an unexpired reentry permit, an employment authorization document issued by the Immigration and Naturalization Service, a birth certificate issued by a State, county or municipal authority bearing a seal or other certification and Native American tribal documents.

VIII. STUDENT EVALUATION

Students are classified as “meeting expectations” or “not meeting expectations” based on the following criteria. See the Definitions and Terms sections for additional definitions.

A. Satisfactory Performance

1. M.S. Program
   - A cumulative graduate grade point average of at least 3.0. The department standard is higher than the 2.75 minimum required by the Graduate College.
   - Generally good performance in research productivity for M.S. thesis (based on the written evaluation of the faculty advisor and/or research director).
   - Generally good performance in teaching assistantship activities (based on the written evaluation of professor in charge).
   - Attendance of departmental seminars as described in the Requirements for Degree section.

2. Ph.D. Program
   - A cumulative graduate grade point average of at least 3.25. The department standard is higher than the 3.0 minimum required by the Graduate College.
   - Generally good to excellent performance in research productivity (based on the written evaluation of the faculty advisor and/or research director).
   - Generally good to excellent performance in teaching assistantship activities (based on the written evaluation of the professor in charge).
   - Attendance of departmental seminars as described in the Requirements for Degree section.

B. Normal Progress

The length of time required to complete a degree program will vary depending on a variety of considerations such as previous degree(s) awarded, background, conditional or regular admission, full or part-time status, degree objective and plan of study. The rate of progress normally expected is such that a resident full-time student would complete an M.S. program in one to three calendar years after the B.S. and the Ph.D. program in four to six calendar years after the B.S. Course selection and registration will be determined in consultation with the academic advisor and generally is as follows:

The guidelines for "normal progress" for each degree objective are listed below. For all graduate students, additional reporting and committee meeting guidelines in the Progress Reports and Annual Meetings section applies.
1. Minimum registration guidelines for all students
The Graduate College Manual has complete rules and regulations on registration requirements and CBE graduate students are governed by them. The Departmental guidelines below exceed those of the Graduate College. Advisor approval is required to deviate from the guidelines below. Registration requirements can be complex, as registration can affect financial aid packages, Fellowships, insurance eligibility, taxation status, immigration status, student loan deferment eligibility, and/or graduation requirements. Please contact department administrators and your advisor on guidance for appropriate registration.

Registration should accurately reflect student usage of faculty time, office space, laboratory space, shop facilities, etc

All semesters
Both Ph.D. and M.S. students must be registered for at least 2 semester hours (research or coursework) in every fall and spring semester up until the semester of graduation. Registration for summer semester is not required unless the degree will be awarded during the summer or if the department deems registration is necessary.

All semesters in residence
Students must register for graduate seminars as described in Requirements for Degree section.

Initial four semesters
All students must register for full time registration during regular semesters although 12 s.h. is recommended. No registration is required during the summer, although students with Fellowships may have special registration requirements. Furthermore, a degree cannot be granted during a semester (or during a summer) where the student is not registered appropriately.

Semesters 5 and beyond
Continuous registration and associated tuition payment is required during all regular semesters. However, students may, with the consultation of their advisor, register at between 2 s.h. and full time registration. Planning is required so that graduation requirements such as 72 s.h. of approved credit are met during the semester of anticipated graduation. Other constraints on registration as described above may apply. Filing of “short hours” forms are required, and International Students are required to submit forms to both immigration and registrar offices. If a student fails to register, then the student may not be readmitted to candidacy until the student has received the appropriate approval and submitted the necessary application.

Registration in “Doctoral Continuous Registration,” “Masters Continuous Registration” are not necessary for CBE students who are activity working toward their degrees (instead use Ph.D. Research and Masters Research registration). For applicability of these and other continuing registration course numbers, please see your advisor and department administrator. “Doctoral Final Registration” and “Masters Final Registration” may be appropriate in special cases but are not needed for students who graduate in the semester of their thesis defense. Please see your advisor and department administrator.

2. M.S. Thesis Program
Semester 1
Before selecting a research advisor, the student is advised by the Director of Graduate Studies (DGS). With the advice and consent of the DGS, the student registers for coursework, seminar, and research. The student meets with potential permanent advisors. A permanent advisor is assigned. The student will usually perform a complete literature review, learn necessary methods and techniques, and perform preliminary experimental work. The student must submit a semester report to his/her research advisor.

Semester 2
Coursework, seminar, and research continues. Early in the second semester the student forms an appropriate thesis committee for the first time and presents a preliminary plan of study. The examining committee will modify and approve the plan of study. Research normally continues throughout the summer whether registered for summer classes or not.

Final Semesters
Depending on the progress made in course work and research, the student should complete the thesis and pass the final examination in the third to fourth semester of registration.

3. M.S. Non-Thesis Program (not combined degree program)

Semester 1
The student is advised by the Director of Graduate Studies (DGS). With the advice and consent of the DGS, the student registers for coursework. A plan of study listing the courses for all semesters anticipated prior to graduation should be created by the student, approved by the advisor, and filed in the student file. Graduate Professional Development Seminar is recommended but not required until the final two semesters.

Semester 2
Coursework continues and progress reports and examination committee meetings are held. Graduate Professional Development Seminar is recommended but not required until the final two semesters. Summer registration and/or summer research is not required for the non-thesis masters student, and securing of internships or external research opportunities is highly encouraged.

Final Semesters
Prior to each semester, the non-thesis student should meet with the academic advisor. During the final two semesters, the Graduate Professional Development Seminar is required. Additional reporting is described in the Progress Reports and Annual Meetings section. Failure to complete a M.S. thesis degree within four semesters may constitute not meeting normal progress, depending on committee discretion. Failure to complete a M.S. thesis degree within six semesters constitutes not meeting normal progress.

4. Combined BS/MS Degree program
The BS/MS program is described at the webpage: [http://www.cbe.engineering.uiowa.edu/bs-ms-program.php](http://www.cbe.engineering.uiowa.edu/bs-ms-program.php). The joint degree program with DDU (Dharmsinh Desai University) is similar except these students are receiving their Master’s from the University of Iowa and B.S. from DDU, and thus are (from the perspective of the University of Iowa Graduate College) subject to requirements of the Graduate College only. This section applies to both University of Iowa BS/MS students and to participants in dual institution BS/MS programs such as the DDU BS/MS program.

Semester BS6 (sixth semester of a traditional 8 semester B.S. degree, or junior spring)
Meet with academic advisor, completing a BS/MS plan (Iowa students only). Submit application to the graduate college (Iowa students only). For University of Iowa CBE students, GRE scores and
letters of reference are not required. For all other students, GRE and letters of reference are required.

*Semester BS7 (7th semester of a traditional 8 semester B.S. degree, or senior fall)*

Begin to take up to 4 cross-credited classes (12 s.h.) for the BS and MS degrees. Attend the University of Iowa CBE graduate student orientation.

*Semester BS8 (8th semester of a traditional 8 semester B.S. degree, or senior spring)*

Continue taking up to 4 cross-credited classes (12 s.h.) for the BS and MS degrees. Complete degree requirements for the B.S. degree. Meet with the graduate examination for the first time.

*Semester Grad 1 (1st semester of 2 semester graduate program)*

Begin taking 6 or more graduate courses and fulfilling the graduate core. Maintain appropriate core and graduate GPA levels.

*Semester Grad 2 (2nd semester of 2 semester graduate program, final semester)*

Finish taking 6 or more graduate courses and fulfilling the graduate core. Maintain appropriate core and graduate GPA levels. Final meeting with graduate examination committee.

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5. Ph.D. Program

The guidelines for “normal progress” for a Ph.D. student with a B.S. degree and having no transfer graduate credit are indicated below. The guidelines for students holding an M.S. degree in chemical engineering are also listed below, although a case-by-case determination is made for each student based on the level of experience and academic preparation.

*Semester 1*

Before selecting a research advisor, the student is advised by the Director of Graduate Studies (DGS). With the advice and consent of the DGS, each student registers for course work and research. The student meets with potential permanent advisors. After several weeks, a permanent advisor is assigned. The student will usually perform a complete literature review, learn necessary experimental methods and techniques, and perform preliminary experiments.

*Semester 2*

The student will continue taking required core courses and learning lab techniques. The Literature Review and Proposal course will assist the student in developing their dissertation research plan. In the spring of the first full year in residence (typically semester 2) students should meet with the standing graduate examination committee and present their progress update and plan of study.

*Semester 3*

In conjunction with the research advisor, the dissertation committee members should be selected and invited onto the committee.

*Semesters 3-6*
Semesters three through six are devoted to completing all core course requirements, the qualifier requirement, and preliminary research. The student will have completed the four core courses by this time and completed the Ph.D. qualifying requirement.

For students entering with a M.S. in chemical engineering, the qualifier requirement should be met during or before the 3rd semester. For students entering with a B.S. in chemical engineering, the qualifier requirement should be met during or before the 4th semester. For students entering with other degrees, the qualifier requirement should be met during or before the 5th semester.

For students entering with a M.S. in chemical engineering, the comprehensive requirement should be met during or before the 4th semester. For students entering with a B.S. in chemical engineering, the comprehensive requirement should be met during or before the 5th semester. For students entering with other degrees, the comprehensive requirement should be met during or before the 6th semester.

Failure to meet these timelines may constitute failure to make normal progress.

Subsequent Semesters
After passing the comprehensive examination, the student intensifies the level of research and achieves a mastery of the subject area. The departmental requirement for an non-terminal MS degree should be met in the semester after the comprehensive is taken.

Final Semester
In the final semester, the student should meet all the requirements of the plan of study and the rules of the Graduate College. The student should meet all residency and dissertation requirements of the Graduate College and the department. The student must pass the Final examination.

C. Appropriate Professional Conduct
As engineers we are expected to act in a responsible and professional manner and are expected to participate in departmental or other professional activities. Relevant standards include the Code of Student Life in the Policies and Regulations Affecting Students of the University of Iowa, Section 20.240 of the University Operations Manual, "Professional Conduct and Academic Responsibility", Chapter 114 of the Code of Iowa and Administrative Rules (Engineering and Land Surveying [390]) of the Code of Iowa, and the Code of Ethics of the American Institute of Chemical Engineers (see Appendix). Alleged violations of this provision will be investigated by the department faculty. If a violation of professional conduct is substantiated, then the department faculty will determine any punitive or corrective action at a closed session of a departmental faculty meeting. Any investigation of professional misconduct or determination of punitive actions shall comply with item 11 of the Student Bill of Rights (University Operations Manual) which recognizes the student in any action against the student. This compliance will include, along with other rights and procedures, the following:

- A fair and impartial hearing for determination of culpability
- Adequate prior written notice of any investigation, hearing, or punitive determination
- A closed hearing, unless the student requests otherwise
- Representation by an advisor if desired, at the student’s request
- The right to present witnesses, written testimony, and other evidence in the student’s defense
- Cross-examination of the evidence against the student
- The right to have character witness testimony heard
- The right of appeal to appropriate University Officers

D. General Participation and Service Requirements
Each Ph.D. or “M.S. with thesis” student meeting expectations, regardless of source of support, is required to participate regularly in the research, teaching, and services activities of the department as an integral part of their graduate training. As a rule, all graduate students are required to serve as examination proctors several times each semester. However, other responsibilities are taken into consideration in compiling the list of proctors. Students who are selected to serve as proctors will be notified electronically or by an announcement in their mailbox. Students may also be asked to grade papers and homework.

Graduate students will be asked occasionally to assist the department in handling special visits to the laboratories. Such visits are regarded as an important departmental responsibility to the University community and general public. Participation provides excellent opportunities for the students to develop skill in both formal and informal presentations.

E. Progress Reports and Annual Meetings
All students shall report their research activities and document their progress toward their degree objective on a regular basis. For students “meeting expectations”, annual reports are due by the Friday of the 6th week of the spring semester. For students not in good standing, a report is required during fall and spring semesters (by the Friday of the 6th week of the semester). These reports are to be submitted in the form requested by the research advisor, although recommended forms can be found in the graduate handbook. One copy is supplied to the advisor and one copy to the department administrator. Documentation and supporting material may also be required and will be considered part of the progress report. The progress report is to be signed by the graduate student. The progress reports will become a part of the student record maintained in the department office. It is the responsibility of the student to have a photocopy of any semester progress reports placed into their departmental folder. Timely submission of the progress report is required for eligibility for financial aid.

All graduate students are required to meet annual with a faculty committee. Progress reports serve as part of the student record that is reviewed at annual committee meetings. Students not meeting expectations should have meetings each semester until good standing is reestablished. Two types of committees exist: (1) the standing graduate examination committee, which consists of the Director of Graduate Studies, Director of Undergraduate Studies, and up to two additional members appointed by the chair; (2) the specific dissertation committee(s) formed by MS Thesis students (in their 2nd semester) and by Ph.D. students (in their third semester). Non-thesis M.S. students will meet with the standing examination committee. Thesis M.S. students should always meet with their dissertation committee due to the compressed nature of the M.S. thesis timeframe. Ph.D. students can meet with the standing examination committee in semester 2 and 3, but should then meet with the dissertation committee after that. Meetings should be completed by the Friday of the 10th week of the semester. This is necessary to prevent end-of-semester scheduling conflicts and to allow committees to approve degrees where appropriate. Where scheduling conflicts prevent a meeting with a full dissertation committee, a meeting with a partial committee or with the standing examination committee is permitted, although a written report of the meeting should be circulated to all members of the dissertation committee. For example, participation of the external committee member is not expected on an annual basis. Separate annual meetings are not required in years with comprehensive examinations or thesis defense examinations.

F. Review of Progress by the Faculty
Each fall, the Director of Graduate Studies will lead a faculty evaluation of progress of each student, and a determination of whether students are meeting departmental expectations. The faculty will base their decision on the academic record, the semester progress reports, and performance in carrying out the
responsibilities of a research or teaching assistantship, evaluations from faculty members and an evaluation by the faculty advisor. In addition, the faculty will determine the level of financial support to be provided (continued, increased, reduced or eliminated), whether the student should be placed on or removed from probation, or in some cases, be terminated from the program. This evaluation will also document progress toward fulfilling the requirements of the degree objective. If there are deficiencies in the student progress, then a letter from the Department Chair or the Director of Graduate Studies will summarize them. The corrective measures recommended and the specified time to remove these deficiencies will also be stated. The student will certify by his/her signature that he/she has read and understands the evaluation. A student who disagrees with the evaluation may submit a letter stating the reasons why the student disagrees with the evaluation. This letter will be attached to the evaluation and will become a part of the student’s file.

meeting expectations.

G. Informal Procedure for Student Complaints Concerning Faculty Actions
In cases where complaints do not involve student alleged academic misconduct, students with complaints against faculty must first attempt to resolve the issue with the faculty member against whom there is a complaint. Lacking a satisfactory outcome, the student should discuss the matter with the Director of Graduate Studies and/or chairperson of the department.

Students who are uncomfortable with dealing directly with a faculty member or department Chair may seek assistance from the Faculty Ombudsman in the College of Engineering in seeking a resolution of the complaint. However, it is anticipated that grievances can be satisfactorily resolved most expeditiously at the faculty or chairperson level. If the student is not satisfied with the outcome of this procedure, then the student should discuss the complaint with the Dean of the Graduate College.

As with all complaint procedures, all reasonable actions will be taken to prevent any retribution against the student(s) initiating the complaint, and any witnesses. This will include, if necessary, accelerated consideration of a change in academic advisor.

H. Academic Misconduct
In dealing with issues of academic misconduct, the department follows the procedures as outlined in Manual of Rules and Regulations of the Graduate College, which can be found at [http://www.grad.uiowa.edu/graduate-college-manual](http://www.grad.uiowa.edu/graduate-college-manual). For BS/MS courses that are for dual credit toward the BS and the MS degree, academic misconduct will be governed by College of Engineering rules and regulations. All graduate students should review the appropriate sections of the Manual of Rules and Regulations of the Graduate College. In summary, plagiarism, cheating, and other forms of academic misconduct are defined by the CBE faculty in accordance with norms appropriate for U.S. engineering programs. Sanctions for academic misconduct are to be determined by the CBE faculty, and can range from an F in an assignment up to dismissal from the Department, which triggers simultaneous dismissal from the Graduate College. Appeal of Departmental decisions on academic misconduct are to be through the Dean of the Graduate College.

The following policies applies to all courses, but may be superseded by specific information in the each syllabus. Faculty are encouraged to specify sanctions for cheating and plagiarism in syllabi, but are not required to do so.

a. Exams:
   In cases of cheating on hourly or final exams, it is recommended that the instructor reduce the student’s grade to the grade of “F” in the course. When a course grade has been reduced to an “F”, the student may not drop the course. Second grade option is not permitted for any graduate courses, so the F will remain on the transcript. It is recommended that cheating on
quizzes be considered as serious a violation as on exams and that the penalty be similar. The instructor shall send a written report of any disciplinary action to the Office of the Dean of the Graduate College and the report shall be placed in the student's file.

b. Plagiarism:
For a first offense of plagiarism on reports and literature reviews worth 15% or less of the total course grade, a zero on the assignment and a written report of the disciplinary action to the Office of the Dean of the Graduate College and the student file is recommended. For a first offense of plagiarism on reports and literature reviews worth more than 15% of the total course grade, an F in the course and a written report of the disciplinary action to the Office of the Dean of the Graduate College and the student file is recommended. For any second offense of plagiarism, dismissal from the Department is recommended. The two offenses may be in different courses or different semesters.

c. Homework, Lab Reports, etc.:
Each instructor shall announce and distribute in writing, at the beginning of each course, the acceptable policies on student collaboration in each of the graded course requirements. When the policy is clearly violated, a zero shall be assigned for the total portion of the course grade allocated to the requirement in which the violation occurred (e.g., a zero for all homework assignments if cheating occurred on a homework assignment). A written report of this action shall be sent by the instructor to the Office of the Dean of the Graduate College and placed in the student's file.

1. Changing Advisors
A change in advisor-student relationship may be requested by either the student or the faculty member. Changing this relationship, while possible, may create numerous difficulties for the student as well as for the advisor. The department may be unable to provide alternative financial support for students previously supported by their faculty advisor or unable to find another faculty member willing to act as their faculty advisor. In addition, the faculty member may be unable to fulfill his research obligations. As a result, changes in advisor are not taken lightly and cannot be automatically approved.

Should a difficulty arise in the advisor-student relationship which cannot be resolved privately, the Director of Graduate Studies and the department Chair may be able to assist the parties in reaching a mutually acceptable agreement. If the problem cannot be resolved after consultation with the Director of Graduate Studies and the department Chair, then a change of advisor may be formally requested by one or both parties. A change of advisor must be approved by the student, the student’s advisor and the department Chair. In the event that either the student or the former advisor refuses approval, a departmental faculty meeting will be held to discuss the change. The approval of the department faculty is required before the change of advisor is approved. In either case, the student can petition the department (by writing a letter to the department chair requesting to present their case at the departmental faculty meeting).

A change of advisor may be permitted only when the following conditions have been met:

- A change in advisor is in the best interests of the student, the faculty advisor and the department.
- The department Chair has been consulted.
- The student is able to find a new faculty advisor in the department or has taken steps to transfer out of the department. Generally, a change of advisor will require the student to change research projects.
• A change of advisor will not be permitted if a M.S. candidate has less than one full semester remaining in his program. A Ph.D. candidate must have at least three full semesters remaining before completing degree requirements.
• The student and/or faculty advisor should submit his/her request for change of advisor, in writing, to the Chair, giving their reasons for making this request. The Chair will bring this request to the department faculty for their approval before the request is approved.

J. Intellectual Property

1. Academic Freedom
The freedom to express new and divergent ideas and to challenge existing "truths" is essential to the vitality of the University. Consistent with this principle, the department encourages students to propose new theories and techniques in the course of their research. Furthermore, students are encouraged to express their ideas in a responsible and scholarly fashion.

It is not an infringement of a student's academic freedom to have the purposes, methods, results and conclusions expressed in the thesis or dissertation challenged for their scholarly merit or to demand that they meet the scrutiny of intense examination and the generally accepted standards of the academic community. In addition, the acceptance of the thesis as meeting the requirements for the degree is solely the function of the examining committee and the Graduate College and academic freedom is not at issue during the final examination.

2. Copyright
University regulations state that the M.S. Thesis or Ph.D. Dissertation is the property of the student and may be copyrighted by the student. It should be noted that a copyright does not imply ownership of the ideas, theories, methods, or conclusions expressed in the thesis or dissertation by the author. Rather, a copyright merely protects the specific form of the expression (i.e., the document itself). The student has the right to copyright his/her thesis or dissertation and can do so by following the procedures established by the Graduate College.

Furthermore, although the written document is the intellectual property of the student, and while novel ideas, concepts, theories, methods, results, and conclusions may also be the student's property, it can also be the property of persons other than the student. In such cases, these ideas, concepts, theories, methods, results and conclusions are the intellectual property of the person(s) who first conceived of them. The student must comply with the requests and demands of the owner(s) of the intellectual property contained in their thesis or dissertation unless the intellectual property in question is available in publicly accessible publications. This provision is not intended to prevent the full publication of the thesis or dissertation.

Except as provided for in the following paragraphs, textbooks and other products of teaching, research, scholarship, and artistic endeavors belong to the faculty or staff member (graduate student) when the product is not the result of a specific assignment or commission and where there is not substantial University contribution or support beyond the salary, developmental assignment, services, and facilities (including libraries and laboratories) customarily provided to faculty (or graduate students) in the respective discipline and University unit.

The University has an interest in and reserves the right to review, negotiate, and sign agreements for the use or sale, outside the immediate instructional setting, of the following educational materials: (1) Materials specifically commissioned by the University; (2) Materials to which the University has made a substantial contribution (one which is significant in the context of the situation and the practices in particular disciplines, schools, departments, or other units of the
University); and (3) Materials developed with the assistance of outside funding where terms of the grant or contract are binding on the author or the University.

Rights in inventions are administered by the University Patent Committee and the University of Iowa Research Foundation pursuant to the official University Patent Policy adopted by the Board of Regents and set forth in the University Operations Manual, volume 1, section 3, pages 31-35. Questions regarding these policies should be addressed to the Office of the Vice-President of Research.

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**IX. DEPARTMENTAL POLICIES**

The department office is located in 4133 Seamans Center and is open from 8:00 a.m. to Noon and 12:30 to 4:30 p.m. Monday through Friday.
A. Smoking Policy

Smoking is prohibited in all University owned buildings, University owned or leased vehicles, and on all University grounds. This includes recreational facilities, athletic facilities, parking lots, and enclosed parking facilities.

B. Assignment of Office/Lab

Each semester the department Chair will assign office and laboratory space to graduate students. Priority for office and laboratory space will be given to students performing thesis research, to teaching assistantships who must meet with students, and full time graduate students. Due to space limitations, office space cannot be guaranteed to all graduate students. However, office space may be available to graduate students in the University's Main Library. Students are responsible for exploring this possibility themselves.

C. Keys and Departmental Security

Keys (or electronic access) to student offices, laboratories, common areas and entrances may be obtained from the department secretary. Students will only be issued keys for which they are specifically authorized. The keys must be returned when requested by the department or when the student no longer requires access. In any case, all keys issued to the student must be returned when all degree requirements are completed.

Each student and faculty member is responsible for all keys issued to him/her. The student must leave a $5.00 deposit for each key, which will be reimbursed when the keys are returned.

Since departmental security depends on key control, it is necessary to re-key all affected locks and issue new keys when a key is lost, stolen or not returned. This is a very expensive process costing up to several hundred dollars for some locks. Do not lend your keys out or leave them unattended. Return keys you no longer need as soon as possible. Graduation applications, registration and other paperwork may be canceled for failure to pay outstanding bills to the department.

The theft of laboratory and personal items is common. Do not keep valuables in your desk. Keep your keys with you at all times. Lock your doors and windows when leaving your laboratory. Do not block open locked doors. Do not let unauthorized persons into the building after hours. Anyone who belongs in the building after hours should have a key.

D. Mail Boxes

Mailboxes for students with offices in the Chemistry Building (CB) are located in the hallway of 123 CB, offices in IATL in the IATL mailroom, and offices in CBB will have mail sent to MTF. Mailboxes for students with offices in Seamans Center are located in 4133 SC. If a student office is located in a building other than these, then arrangements can be made with the department to have mail delivered to that building. Please check your mailbox frequently for mail, messages and memos. Students with a TA assignment will have a mailbox during that semester located in 4133 SC.

E. Computing

As a graduate student in the department you also have access to all CSS (Computer Systems and Support) resources. Students must use computing resources ethically and legally. It is a violation of University policy to access, read, copy or use the computer programs, files, tapes or other material without the knowledge and consent of the owner. Violation of this policy is considered the equivalent of theft. In addition, students must observe the copyright protection afforded commercial software and are not permitted to make illegal (or "bootleg") copies of copyrighted software. Access to super
computers, parallel processors and other high speed computing resources is available. Your faculty advisor or the department Chair can assist you in obtaining time on these machines.

F. Shops
There are a number of shops on campus available to repair and construct graduate research apparatus. These shops charge users for labor and materials. A university requisition is required and must be requested prior to obtaining services. Please work closely with your advisor to select facilities for construction and repair of apparatus.

G. Purchasing Supplies and Services
Bar code cards can be obtained in the Departmental Office for purchases from Chemistry Stores and Biochemistry Stores. Purchasing supplies through other University services such as General Stores, Shops or the Memorial Union requires a university requisition. Students may obtain a requisition request form from the department office or from a supply above the graduate student mailboxes (123 CB). The requisition request form must be approved by the faculty advisor and have the account number filled in before it will be processed. All requisitions must be signed by the Chair or his/her designate. All purchases must be made with the properly authorized forms. The department may not reimburse individuals who make purchases using personal funds.

Major equipment costing more than $5,000 must be bid out by the University Purchasing Office. You must provide the Purchasing Office with the specifications which must be met by the equipment or instrument. They will then secure confidential bids from possible vendors. You may ask the Purchasing Office to secure bids from specific vendors. The Purchasing Office will generally select the lowest bid which meets your bid specifications. You and your advisor may ask the Purchasing Office not to award the bid to the lowest bidder; however, written justification is required. Once the bid price is known, a University requisition is sent to the Purchasing Office and the bid is awarded. This process is very time consuming and usually takes several months to complete. Students should plan their research accordingly.

H. Library
The University of Iowa has a decentralized library system. Most of the chemistry and chemical engineering literature is accessible on the web. Engineering and some chemical engineering literature is housed in the Engineering Library (2100 SC). Mathematics and computing literature is in the Mathematics Library (125 MLA). Most of the biochemistry, biochemical engineering and biotechnology literature is located in the Health Sciences Library. The other libraries on campus are: Main Library, Art Library (AB), Biology Library (301 BB), Business Administration Library (C320 PBS), Chemistry Library (main library, 2nd floor), Curriculum (Education) Library (N140 LC), Geology Library (136 TH), Law Library (326 BLAB), Music Library (2000 MB), Physics Library (350 VAN), and Psychology Library (W202 CI). Loan policies vary by library; however, graduate students typically may check out books for one semester. All material is subject to recall. Journals in the Chemistry Library may be checked out for one week. Journals in the Health Sciences Library may only be checked out overnight and must be returned the next morning.

I. Secretarial Assistance/Copy Machine/Laser Printer
Secretarial assistance is limited to that needed to discharge the responsibilities of an assistantship or other appointment. T.A.'s are encouraged to type their own lecture material using a personal computer. Personal typing such as thesis, class material, homework, etc. is the responsibility of the student.
Use of the department copy machine is limited to that needed to discharge the responsibilities of a teaching or research assistantship.

J. Use of Teaching Equipment for Graduate Research
In general, it is the policy of this department that equipment of the instructional laboratories may not be used for graduate study. Limited short-term or occasional use for graduate research may be approved by the Director of Undergraduate Laboratories or the Department Chair. The equipment must remain in the instructional laboratory, and such usage must not interfere with the instructional use of the equipment. The research advisor must certify in writing that use of the equipment is essential to the research project and that the advisor and student will be responsible for repairing any damage to the instruments that arise from their use. The research advisor must also agree to pay for supplies and incidental items used by his students while using instructional equipment. This is necessary to cover the cost of such items as paper, pens, syringes, cuvettes, reagents, etc. The users must be trained to use the equipment properly and safely. Any equipment problems must be reported immediately to the Director of Undergraduate Laboratories or the Department Chair. Arrangements for repairs due to damage or wear from non-instructional use must be made immediately from non-departmental funds. For use of the instruments after hours, room access may be granted with the permission of the Director of Undergraduate Laboratories or Department Chair. Any violation of these policies may result in the loss of instructional equipment use privileges.

In extraordinary circumstances, instructional equipment may be loaned to faculty advisors for research purposes for a limited time (typically four weeks or less). A written request must be submitted to the Director of Undergraduate Laboratories or Department Chair. Approval will be granted only if undergraduate teaching will not be impaired and the faculty advisor has taken steps to purchase the needed equipment. In no case will teaching equipment be loaned for more than one semester.

K. Gas and Gas Cylinders
Gas for experiments may be purchased through General Stores. Email the department secretary with the type of gas needed, size of cylinder, serial number, lab location, your phone number so that you can be contacted when cylinders arrive, and the account that will pay for the gas and cylinder rental. The gas cylinders will be delivered to the laboratory. The gas is purchased; however, the gas cylinders are rented. Projects will be charged a monthly rental fee for each cylinder ordered until the cylinder is returned to General Stores. These fees can add up quickly and students are requested to return cylinders as soon as they are no longer needed. Label cylinders and email the department secretary to have the empty cylinders picked up. All gas cylinders should be stored upright and secured safely to a bench or wall at all times. Flammable gases should be kept far away from all sources of heat or sparks. When being stored without regulators, the gas cylinder valve should be closed and the protective cap replaced. Contact the Health Protection Office should you have questions regarding the safe use and storage of gases and gas cylinders.

L. Safety and Hazardous Materials
All chemicals in the laboratory should be considered potentially hazardous. Material Safety Data Sheets (MSDS) are available online for most of the chemicals used in your laboratory. The MSDS contains information regarding the potential chemical, physiological, mechanical and other hazards associated with the chemical. Check with your faculty advisor, the department office or the Environmental Health and Safety Office in order to see the MSDS of interest to you. Laboratory instructors are responsible for providing MSDS on all chemicals used in the course to the graduate T.A.’s. The T.A.’s are then responsible for making them available to the laboratory students before they start the lab.
Each experimental laboratory must have at least one person designated and trained to dispose of hazardous waste.

The PI of each laboratory is responsible for initial and annual training of all students and staff working in the lab. Typical training requires online training in Chemical Safety for Labs, Safety Procedures for UI, PPE (Personal Protective Equipment) Awareness for Labs, Hazardous Material Preparedness and Spill Response, and lab specific training in the Chemical Hygiene Plan / Lab Chemical Safety which covers access to MSDS sheets, training and Standard Operating Procedural requirements for the specific lab, evacuation routes, and PPE requirements for the lab. Initial and annual training, such as in compressed gasses, laser safety, blood born pathogens, ionizing radiation, or other topics may be appropriate.

Please see a senior member of the lab or faculty member if you are unsure of a safe procedure, or of the training and training documentation requirements for your research.

X. EMERGENCY PROCEDURES
In the event of fire or chemical hazard, you should leave the building and call for help. Fire extinguishers, fire alarms, eyewash fountains and emergency showers are in all laboratory areas. Note the location of these devices near your office or laboratory. For all emergency situations where immediate assistance (police, fire or ambulance) is required call 9-911. You should state your location, the nature of the trouble and the assistance you are requesting. In the event of a serious building problem such as loss of electricity, a leak in gas, steam or water lines or other problem which requires immediate attention, you should contact the Facilities Services Group office (5-5071). After working hours, call the Facility Services Group emergency number, 335-5063, or Public Safety, 335-5022. To report a theft or other crime, contact Public Safety, 335-5022. Finally, you should report all problems and emergency situations to your faculty advisor or the department Chair as soon as possible.
XI. APPENDIX
A. AIChE Code of Ethics

In August of 1980, the Council of the Institute adopted the following as its own Code of Ethics, to which it expects the professional conduct of its members to conform and to which every applicant attests by the signing of his or her application.

1. Fundamental Principles
   Engineers shall uphold and advance the integrity, honor, and dignity of the engineering profession by:

   - Using their knowledge and skill for the enhancement of human welfare.
   - Being honest and impartial and serving with fidelity the public, their employers, and clients.
   - Striving to increase the competence and prestige of the engineering profession.

2. Fundamental Canons
   - Engineers shall hold paramount the safety, health, and welfare of the public in the performance of their professional duties.
   - Engineers shall perform services only in the areas of their competence.
   - Engineers shall issue public statements only in an objective and truthful manner.
   - Engineers shall act in professional matters for each employer or client as faithful agents or trustees, and shall avoid conflicts of interest.
   - Engineers shall build their professional reputations on the merits of their service.
   - Engineers shall act in such a manner as to uphold and enhance the honor, integrity, and dignity of their professional development.
   - Engineers shall continue their professional development throughout their careers, and shall provide opportunities for the professional development of those engineers under their supervision.
TA EVALUATION FORM

TA: __________________________________________________________

Instructor: _____________________________________________________

Course: _______________________________________________________

Semester Course Offered: _______________________________________

Rate overall performance:

___ Outstanding

___ Good

___ Satisfactory

___ Below Standards

___ Unacceptable - (Do not allow this person to be a TA again)

Comments Supporting Evaluation:

Instructor Signature ___________________________________________ Date: ______________

TA Signature _________________________________________________ Date: ______________
ANNUAL PROGRESS REPORT
FOR NON-THESIS MS STUDENTS

Student Name: ____________________________________________________________

Advisor: __________________________________________________________________

Student signature and date:___________________________________________________

Advisor signature and date: _________________________________________________

The progress report should address the following items:

1. Anticipated graduation date
2. Career or post-graduation plans
3. Courses completed or in progress since the last progress report
4. Other activities completed or in progress since the last progress report (research projects, internships, extracurricular activities, conferences attended, awards, publications, oral and poster presentations)
5. Planned courses for the upcoming semester(s)
6. In classroom desired academic results for the upcoming semester(s), including specific grade targets or other academic achievements if appropriate (e.g. if GPA is below a target, what grades are necessary to reach the target)
7. Outside of classroom targets. In other words, describe specific goals for professional development and personal growth. Areas of common student focus include specific technical skills, attendance and presentation at technical meetings, participation and leadership of student and professional organizations, improved presentation of resume, public speaking skills, study skills, time management skills, physical wellness, and career networking
8. Description of any obstacles or barriers to success that may prevent you from achieving the listed goals, and (if applicable) steps you will take to overcome these barriers.
9. Description of the support network (study groups, tutors, family resources) that are being used to be successful toward the degree.
10. For students not meeting expectations, a specific timetable of milestones and performance goals. Typical examples include drafts of course projects and research products completed well in advance of deadlines, review of written materials by peers by specific dates, and completion of practice exams by specific dates, etc.

Recommended length of the progress report is between 400 and 1000 words.

Report should be submitted as a word document to allow inclusion of review committee comments. Final document for inclusion in the Departmental files should be signed by the faculty member and student.
ANNUAL RESEARCH PROGRESS REPORT
FOR MS THESIS AND PH.D. STUDENTS

Student Name: ________________________________________________________________

Advisor: _______________________________________________________________________

Student signature and date: ______________________________________________________

Advisor signature and date: ______________________________________________________

The progress report should address the following items:

1. Anticipated graduation date, and dates of key milestones toward degree (e.g. completion of core courses, completion of qualifying requirement, completion of non-thesis MS en route to Ph.D., comprehensive exam).
2. Research project title
3. Overall goals of research project
4. Work completed to date on research project (with detail on recent progress and summary of progress from previous reporting periods)
5. Specific research objectives for next 12 months
6. Publications (completed and in progress)
7. Oral and poster presentations
8. Awards
9. Interaction with CBE Department mentoring program (if applicable)
10. Career or post-graduation plans
11. Courses completed or in progress since the last progress report
12. Other activities completed or in progress since the last progress report (internships, extracurricular activities, training or developmental seminars)
13. Planned courses for the upcoming semester(s)
14. In classroom desired academic results for the upcoming semester(s), including specific grade targets or other academic achievements if appropriate (e.g. if GPA is below a target, what grades are necessary to reach the target)
15. Outside of classroom targets. In other words, describe specific goals for professional development and personal growth. Areas of common student focus include specific technical skills, attendance and presentation at technical meetings, improved written or spoken English, participation and leadership of student and professional organizations, improved presentation of resume, public speaking skills, study skills, time management skills, physical wellness, and career networking
16. Description of any obstacles or barriers to success that may prevent you from achieving the listed goals, and (if applicable) steps you will take to overcome these barriers.
17. Description of the support network (study groups, tutors, family resources) that are being used to be successful toward the degree.
18. *For students not meeting expectations*, a specific timetable of milestones and performance goals. Typical examples include drafts of course projects and research products completed well in advance of deadlines, review of written materials by peers by specific dates, and completion of practice exams by specific dates. etc.

Recommended length of the progress report is between 800 and 1400 words.

Report should be submitted as a word document to allow inclusion of review committee comments. Final document for inclusion in the Departmental files should be signed by the faculty member and student.
**Ph.D. COMPREHENSIVE PROPOSAL FORMAT**

1. **Cover Sheet.** Includes distinct project title (maximum of 80 characters), name, etc.
2. **Project Summary.** Maximum of 250 words. This should be page 1 of the proposal, with this and each succeeding page number centered at the bottom of the page.
3. **Table of Contents.**
4. **Research Plan.** This section is a maximum of 25 pages. It can be single spaced, but must have 1" margins on all sides and a font size of at least 12 (Times New Roman preferred). This limit includes all figures and tables, but not the "Literature Cited" section. The research plan should answer the following questions. What do you intend to do? Why is the work important? What has already been done? How are you going to do the work? This plan should be hypothesis-driven. This section should contain the following subsections:
   a. **Specific Aims.** Should have 2 to 3 specific aims. It is recommended that this section be limited to ~1 page.
   b. **Background and Significance.** Review of relevant literature and justification of research (i.e., why is the work important?).
   c. **Preliminary Results.**
   d. **Research Design and Methods.** This section should be related back to the specific aims, i.e., the first 4 subsections given below should be written for each specific aim.
      - **Experimental Design.** This should briefly discuss the strategy behind the experiments that will be conducted to address the specific aim in question.
      - **Expected Results.** What results do you expect to obtain?
      - **Potential Problems.** What potential problems could arise by following the proposed plan, i.e., what could go wrong? Should briefly discuss alternative approaches for those cases where potential problems could arise.
      - **Methods.** This section includes the methods that will be used, written in a format similar to the methods section of journal articles. For established methods you should give a brief overview of the methods and cite literature references that can be consulted for additional details.
      - **Proposed Time Table (i.e., “Gantt Chart”).**
      - **Literature Cited.** This should include complete references (including journal article titles) and be given alphabetically based on the first author's last name.
5. **Biographical Sketch.** A biographical sketch is required and should be completed as follows (2-page limit):
   a. Complete Contact Information.
   b. Education and Training. List all of your post-secondary educational and training experiences.
   c. Professional Experience. List positions (including co-ops and internships) directly relevant to research.
   d. Publications. List your publications that are relevant to the proposed project.
   e. Presentations. Provide information about your conference presentations that are relevant to the proposed project.
   f. Honors and Awards. List all of your relevant honors and awards.