

Guide for Graduate Students | 2016-2017

Make an impact

energy sustainability health

at IOWA STATE UNIVERSITY
Department of Chemical and Biological Engineering

www.cbe.iastate.edu

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1 GRADUATE TIMETABLE

Upon arrival

- Check in with Bellinda Hegelheimer, Graduate Program Assistant, 2162 Sweeney Hall
- Receive CBE Guide for Graduate Students
- Receive website for Graduate College Handbook
http://www.grad-college.iastate.edu/common/handbook/Grad_College_Handbook.pdf
- Receive office assignment
- Receive key form for office, graduate student lounge, exterior door key, and any lab keys
- Receive tour of building
- Sign up for payroll and benefits in the Human Resources Office (take a copy of your official Letter of Intent and a photo ID)
- Obtain keys from the Key Issue Office, General Services Building
- Sign up for an E-mail account online. If you have questions contact Solutions Center, 195 Durham Center
- Meet with Chair or Co-Chair of Graduate Committee (primarily for course registration)

During the first semester

- Make research project selection
- Receive Safety Training
- Teaching Practicum – via completion of CH E 698

Within one year of entry (M.S.) [student with B.S., ChE]

- Complete Committee Appointment form
- Fill out Program of Study form
- Responsible Conduct of Research Training – via completion of GR ST 565

Within two semesters of entry (Ph.D.) [student with B.S., ChE]

- Apply for admission to Ph.D. program by taking Research Progress Examination (January or August)
- Responsible Conduct of Research Training – via completion of GR ST 565

Within six months after being admitted to Ph.D. Program [student with B.S., ChE]

- Complete Committee Appointment form
- Fill out Program of Study form
- Meet with Program of Study Committee

Within two years after being directly admitted to the Ph.D. program

- Fill out Preliminary Examination form
- Give seminar on research/submit report
- Take preliminary examination

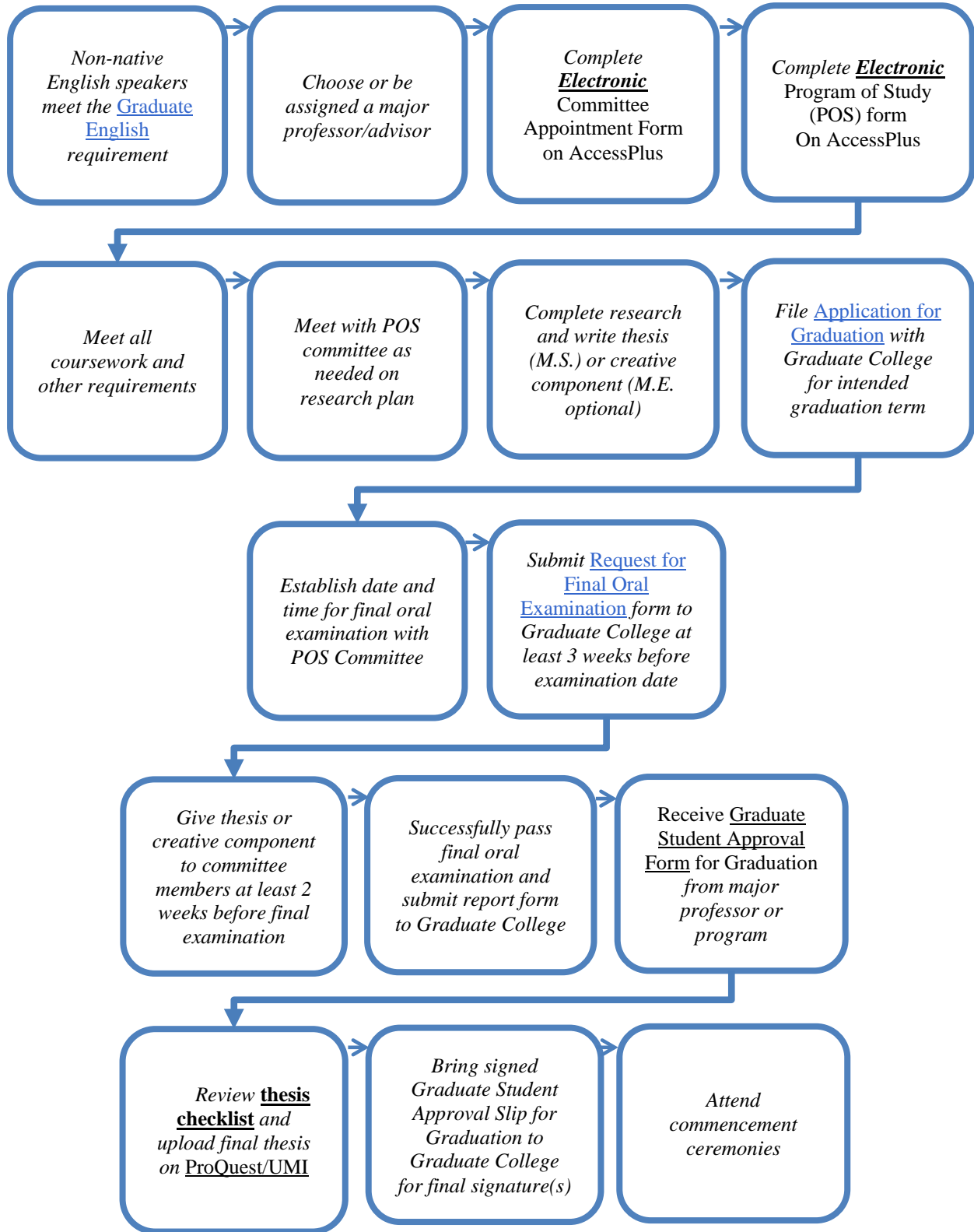
During semester before graduation

- Fill out Final Examination form
- Complete Diploma Slip form
- Take final examination

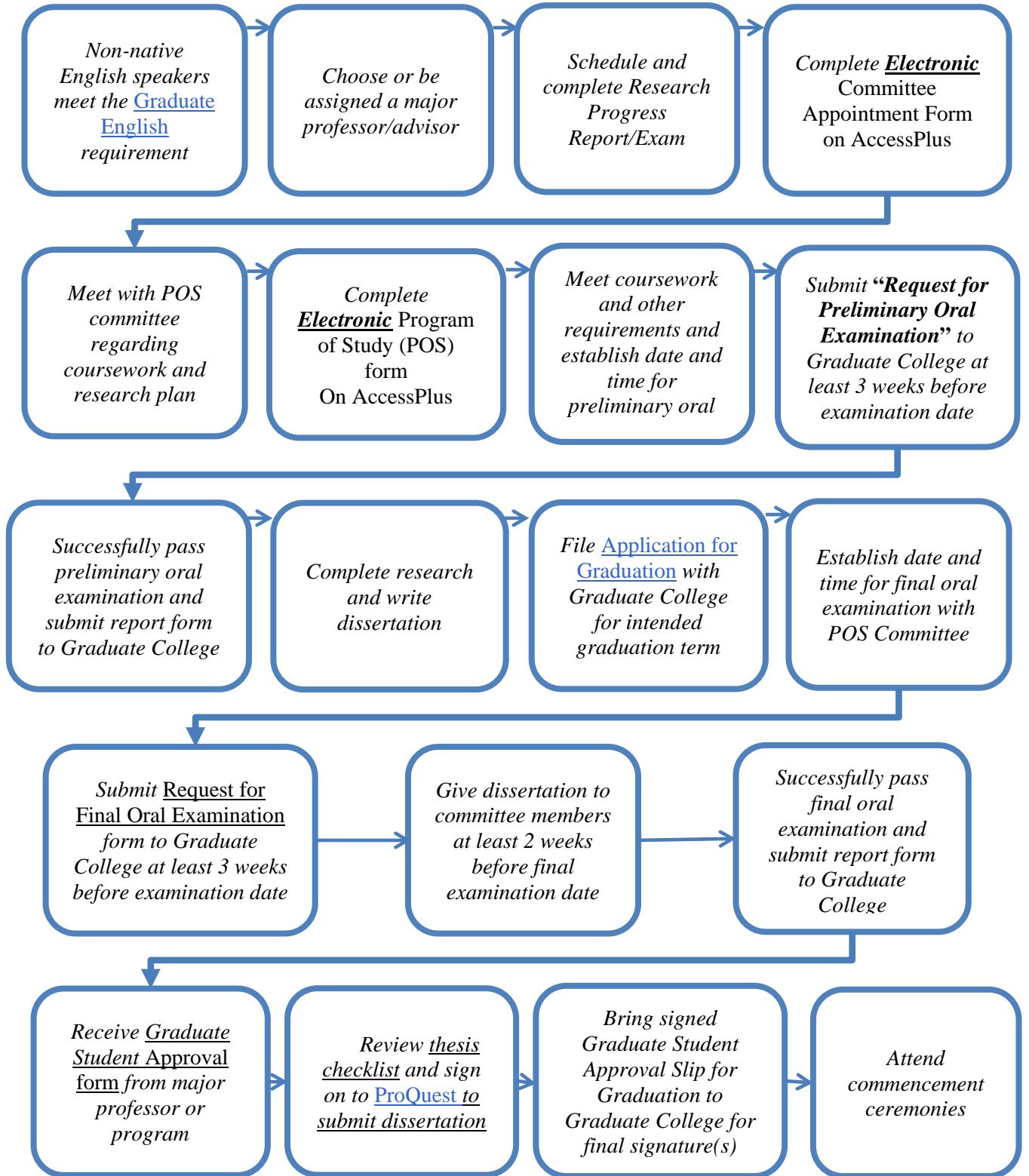
Before departure

- Fill out Checkout Form (available from Bellinda in 2162 Sweeney)
- Give Bellinda a paper and an electronic copy of your thesis/dissertation
- Complete Graduation Approval form

1.1 PROCEDURES FOR EARNING A MASTER DEGREE (M.S. OR M.E.)



1.2 PROCEDURES FOR EARNING A DOCTOR OF PHILOSOPHY DEGREE



2 CHEMICAL AND BIOLOGICAL ENGINEERING FACULTY AND STAFF

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3 STARTING OUT

3.1 Arrival and Orientation

Upon arrival in Ames, new graduate students must stop in the Graduate Program Office in 2162 Sweeney Hall. Students will be directed to the Chair or Co-Chair of the Graduate Program Committee for registration assistance and/or instruction for the coming semester. Students with graduate assistantships are expected to take 9-12 credits of ChE coursework each semester. The student will be assigned a temporary office and a form to take to the Key Issue Office in the General Services Building. The form will enable the student to obtain appropriate keys for the assigned office, entrance to the building, and the graduate student lounge. The student will need to sign up for payroll in the Human Resources Office, 3810 Beardshear Hall. Sign up for an email account online at <http://www.it.iastate.edu/email>. If you have questions, contact the Solutions Center of the Computation Center, 195 Durham Center.

3.2 Appointments and Stipends

The terms of appointment are described in the original offer letter and in a Letter of Intent form the student must sign. Graduate students without an assigned project will have a temporary office until a project is selected. When a project is selected and a major professor (research adviser) is determined, the student will be assigned a permanent office. The student's major professor will advise him or her of the duties of the appointment and the accountability procedure. All appointments are reviewed annually and the student will be advised of the nature of the next year's appointment prior to the end of the academic year.

3.3 English Requirement

Students whose native language is not English must take a placement examination during orientation. Students not passing this exam are placed in one or more of the courses in English 100 during the pre-registration process at orientation. These courses may be taken on a pass/not pass basis.

3.4 Research Project and Major Professor Selection

Those needing to be assigned a research project will listen to oral presentations by faculty with openings that are available to choose from upon arrival. The student should discuss projects of interest with the appropriate professors. Before the deadline, usually in mid-September, the student will submit a list of preferred projects and major professors to the Department Chair.

Within the limitations of faculty time and funding, students will be assigned a project and research professor on his or her preferred list. The major professor assigned will be the chair of the student's program of study committee (POSC).

3.5 Safety Training

Laboratory safety training for new graduate students is held each fall and presented by the Environmental Health & Safety (EH&S) Department. This is a mandatory training required under state and federal law for all new employees and for any employees who have not received prior Iowa State University training. This training is required for compliance with the OSHA Laboratory Standard (29 CFR 1910.1450 "Occupational Exposure to Hazardous Chemicals in Laboratories"). If you receive salary, wages, or a stipend for working in laboratories in the Department of Chemical and Biological Engineering, you must attend. This includes faculty, staff, hourly wage employees, research assistants, teaching assistants, and postdoctoral students.

Topics will include: OSHA Laboratory Standard, Laboratory Safety Manual, Material Safety Data Sheets, Prior Approval Procedures, Laboratory Hazards, Chemical Hygiene, Personal Protection, Housekeeping, Containers and Labeling, Hazardous Waste Disposal and Electrical Safety. Depending on what your research is, additional training may be required later. Willful failure to comply with safety requirements is grounds for dismissal.

3.6 Responsible Conduct of Research Training

All graduate students are required to take the one credit course, GR ST 565 Responsible Conduct of Research. Graduate students are introduced to issues concerning integrity and honesty in scientific research, compliance with regulations, and good research practices. Graduate students will register for this course in the term following their term of entry.

3.7 Teaching Practicum and Curricula Teaching Requirements

An important component of graduate education is the ability to teach. Thus, the CBE department requires that all students participate in the teaching mission of the University. This objective is partially achieved through a teaching practicum, **Ch E 698A—Teaching Practicum**, which is comprised of a weekly discussion group and is taken in the first Fall term.

A second component is **Ch E 698B—Curricular Teaching Experience (CTE)**, in which the student participates in the instruction of ChE course(s) under the mentorship of a CBE faculty member. Typical activities that the students will participate in as part of the CTE are shown below. At the end of the CTE, the students will submit a short report to the graduate committee that summarizes their CTE activities, with input from the faculty instructor. Every CBE Masters student must complete at least one semester of CTE and all CBE doctoral students must complete at least two semesters of CTE.¹ An additional term of CTE may be prescribed as an outcome of unsatisfactory core course performance as described in section 4.5.1. The scheduling of CTE terms will be determined in collaboration with the major professor and the associate department chair.

There are many other ways to gain teaching experience for interested students. For example, students may apply for faculty intern positions. These highly competitive positions provide opportunities for interested and qualified students to teach a portion of a lecture course and represent a great opportunity for students interested in academic positions.

Exemplar CTE Activities:

- Actively participate in classroom lectures and/or laboratory instruction (including delivering a few lectures)
- Help instructor design homework and/or exam problems
- Participate in formulation of projects (if any)
- Hold problem-solving recitation sessions with students
- Grade homeworks, quizzes, and/or lab reports

3.8 Additional Coursework for Non-ChE Students

Even though the vast majority of CBE graduate students are chemical engineers, the department does admit highly qualified students from non-ChE backgrounds. These students will need to up to 6 undergraduate level courses in ChE to enhance their preparation for taking graduate level ChE coursework.

¹This requirement includes students that have already completed one or more terms of CTE or served as a Teaching Assistant (TA) in another department. If students wish to transfer one or more terms of CTE from their previous institution, please complete the [CBE Graduate Transfer Credit Worksheet](#) and submit to the DOGE or Associate DOGE for approval as described in Section 3.9. CTE experiences earned on the ME or MS track in the ISU CBE Department will apply towards a future transfer to the Ph. D. program, however.

Credit earned in these courses is not applied to the POS. Based on their undergraduate specialty, they will need to earn a "B" or better in undergraduate ChE courses as per the table below:

Course	Title	Prerequisite	ISU Course
ChE 545	Analytical and Numerical Methods	1 semester undergraduate differential equations course	Math 267
ChE 554	Integrated Transport Phenomena	2 semesters undergraduate transport phenomena (fluids, heat, mass transfer)	ChE 356, 357, 381
ChE 583	Advanced Thermodynamics	1 semester thermodynamics course	ChE 381
ChE 587	Advanced Chemical Reactor Design	1 semester reactor design course	ChE 382

These students will identify the courses they need to take on the [Non-ChE Student Graduate Preparatory Coursework Worksheet](#) and submit to the DOGE with the appropriate transcripts documenting courses that fulfill the prerequisite requirements.

3.9 Transfer Credits

If students wish to transfer graduate-level course credits from their previous institution, please complete the [CBE Graduate Transfer Credit Worksheet](#) and submit to the DOGE or Associate DOGE for approval. In general, the following policies apply:

- Eligible courses include lecture or lab courses that are eligible for graduate credit at the other institution.
- Research credits, teaching practicum credits, seminar credits, or research ethics credits are not eligible for transfer.
- The 600-level course requirement may not be satisfied with transfer credits.
- The course must have been taught by a member of that institution's graduate faculty.
- The course must not have been applied to an undergraduate degree that you earned while at that institution. This must be clear on the transcript or attested to by a letter from the other institution.
- A grade of "B" or better is required.
- **The POS committee must approve the inclusion of all transferred electives on the POS form.** This means that although your elective credits may transfer, it is up to your POS committee to determine if they can be used to satisfy your degree requirements.

4 CONTINUATION OF STUDIES

In working towards a graduate degree, ChE students must fulfill the requirements of both the Graduate College and the Department. These include selecting an advisory committee, developing a program of study, passing preliminary examinations, and meeting coursework and other general requirements. (Graduate College requirements are discussed in more detail in the Catalog and the Graduate College Handbook <http://www.grad-college.iastate.edu/publications/gchandbook/homepage.html>).

4.1 Committee Selection and the Program of Study

Each graduate student, in collaboration with his or her major professor, shall identify the faculty members to serve on an advisory committee, also called the Program of Study and Committee (POSC). This committee guides and evaluates the student during the period of graduate study. Normally the student will ask individual faculty members to serve on the committee after consultation with the major professor. After the selected faculty members have agreed to serve on the committee, the student can set up a meeting with his committee members to develop a program of study (coursework that the student will need to complete as part of his graduate program). Once the student has met with his committee and the committee has agreed on the coursework, the student can go on AccessPlus to complete and route the POSC form. The POSC form serves the dual purpose of (1) identifying faculty members who will serve on the student's committee,

and (2) selecting all the coursework that will count toward the degree. Once the student has completed and routed the POSC form on AccessPlus, the form will first go to the major professor for approval. Once the major professor has approved the POSC form, the form will be routed to all other committee members. The committee members can approve the POSC form in AccessPlus.

The master's POS Committee consists of at least three members of the graduate faculty. It must include two members, including the major professor, from the major or program. The committee must include member(s) from different fields of emphasis so as to ensure diversity of perspectives. The POS Committee for a doctoral program consists of at least five members of the graduate faculty. It must include at least three members, including the major professor, from within the student's major or program. Again, the committee must include member(s) from different fields of emphasis so as to ensure diversity of perspectives. If a student declares a minor, one of the outside committee members must be from the minor department. If students need to change the members of their committee, they can make the change on AccessPlus and route the POSC form for approval.

- Students pursuing the Ph.D. bypassing the M.S. must submit the completed POS form and hold the POS Committee meeting within **six months** of being admitted to the Ph.D. program.
- Students who first obtain an M.S. degree and continue towards the Ph.D. must submit the completed Ph.D. POS form and hold the POS Committee meeting by the **end of the semester** following completion of the M.S. degree.
- Students pursuing the M.S. degree must submit the completed POS form within **4 months** of entry. No POS meeting is required for an M.S.

4.2 Degree Requirements (Program of Study Requirements)

4.2.1 Master of Science

A minimum of 30 graduate credits must be earned for the M.S. degree. A minimum of 17 credits of this must be coursework, including 14 credits of ChE courses, including ChE 698A, ChE 698B and at least two courses chosen from ChE 545, 554, 583, and 587. In addition to the ChE courses, a minimum of 3 credits of course work must be taken outside of the department, including GR ST 565.

In addition to satisfying the normal graduate degree requirements, students without an undergraduate degree in chemical engineering must demonstrate proficiency in the major undergraduate subjects of chemical engineering: material and energy balances, heat and mass transfer, fluid mechanics, thermodynamics, and chemical reaction engineering. This is usually accomplished by completion of undergraduate coursework as described in Section 3.8.

At the POS Committee meeting held after the student is admitted to the Ph.D. program, the student's major professor and the POS Committee will determine if additional coursework should be required.

4.2.2 Master of Engineering

Coursework requirements for the Master of Engineering degree are 30 credits of graduate or nonmajor graduate credit coursework. A minimum of 20 credits must be ChE graduate level coursework, which must include ChE 698A and 698B, and must also include two courses chosen from ChE 545, 554, 583, and 587. Up to 6 credits can be a creative component (ChE 599). Application of any ChE 599 credits toward the POS requirements necessitates forming a POS Committee, normally with the faculty member supervising the ChE 599 credits serving as major professor. If no ChE 599 credits are applied then the CBE co-Director of Graduate Education serves as the student's adviser and approves the POS. Students without an undergraduate degree in chemical engineering must meet the same additional requirements specified for the Master of Science degree.

For students choosing to do a creative component, a Program of Study Committee will evaluate the outcome in a final oral exam. The committee will consist of the major professor and two additional faculty members. One of the additional faculty members must be from the CBE department.

4.2.3 Doctor of Philosophy

A minimum of 72 graduate credits must be earned for the Ph.D. degree. A minimum of 26 credits of this must be coursework. The ChE coursework requirements include 17 credits of chemical engineering core courses ChE 545, 554, 583, and 587, GR ST 565, ChE 698A, two terms of ChE 698B, and nine credits of graduate or nonmajor elective courses, at least three credits of which need to be 600-level course(s) graded on an A-F scale. These elective courses will be decided together by the student and the POSC, depending upon the research area of the student and can be within ChE or outside. The Graduate College requires that the topics of independent study credits (ChE 590/692) applied to the POS be identified on the POS form and approved by the Committee. Generally, independent study credits in doctoral studies are indicated only for work done clearly outside the scope of the thesis project, under the direction of a member of the faculty that is not the student's major professor.

Many students will take more coursework than the minimum listed above to improve identified deficiencies or to achieve special needs that relate to their research. The student's POS committee will determine these courses. Students without undergraduate or graduate degrees in ChE must meet the same additional requirements specified for the M.S. degree.

4.3 Graduate Minor in ChE

Graduate students in other departments who do not have ChE backgrounds can obtain a minor in ChE by completing 12 credits of 300-, 400- or 500-level ChE courses. At least 9 of these credits must be in core chemical engineering courses, and not elective courses. A CBE faculty member must serve on the student's POS Committee to help guide selection of courses for the minor.

4.4 Admission to the Ph.D. Program

Admission of students to the Ph.D. program by the department faculty is based on achievement in graduate courses and progress in research.

4.4.1 Coursework

Superior performance in the core ChE graduate classes is expected from students wishing to be admitted to the Ph.D. program. Students should maintain an average GPA of 3.5 or higher in four core chemical and biological engineering graduate classes. These core classes are ChE 545, 554, 583, and 587. Students with a ChE background will have to demonstrate satisfactory performance in these core classes before the end of their first year. Students without undergraduate or graduate degrees in ChE should demonstrate proficiency in the four core courses at the earliest opportunity, depending on their coursework requirements; however, the core coursework requirements should be met no later than four semesters after entry.

If students fail to demonstrate the required performance in any or all of the subjects, they will either be asked to satisfactorily complete requirements suggested by the Graduate Committee or stop with a Master's degree (based on other inputs such as research performance). These requirements can include retaking undergraduate and/or graduate courses and receiving grades of B+ or higher. They could also involve serving as a teaching assistant for appropriate undergraduate courses with responsibilities such as handling weekly tutorials for students, teaching one week of the course, and designing exam questions and projects. With the course instructor, the student will summarize the work done for the course at the end of the semester. This summary will be signed by both student and course instructor and will be placed in the student's file, documenting successful completion of the TA requirement.

4.4.2 Research Progress

In addition to performance in graduate courses, students must achieve satisfactory progress in research before being admitted to the Ph.D. program. Students are required to submit a five-page report summarizing their research progress, usually submitted to the faculty a year after entry (August for Fall admitted students and January for Spring admitted students). The report should be formatted as follows: single-spaced, single column per page, 1 inch margins on all sides, Times New Roman 11 font. Figures and tables should be

placed at the end of the document; they do not count toward the five-page limit. Students without a B.S. or M.S. degree in ChE or equivalent can submit their summary of research progress no later than two years after entry. The summary should be prepared **without** any input from the major professor. The students are also required to present a research progress seminar to a committee comprising of at least three faculty members from the department. The committee will include the student's major professor, and two other faculty members who will be chosen by the Graduate Committee. The student should demonstrate a good understanding of the research problem and report specific accomplishments. A research rubric (see next page) describing the expectations will be made available to the students before the seminar.

The faculty will take into account recommendations from the student's major professor and the committee about the student's research progress, along with the Graduate Committee's recommendation regarding coursework performance. Based on all these inputs, the faculty will decide whether or not the student has exhibited satisfactory performance to be 1) admitted directly to the Ph.D. program; or 2) be approved to go on for a Ph.D. with the requirement of completing a M.S. first; or 3) be approved conditionally to continue directly for a Ph.D. with the option of asking the student to stop with a M.S. if there is no satisfactory improvement by the preliminary examination; or 4) be refused admittance into the Ph.D. program.

4.4.3 Preliminary Examination

A student becomes a Candidate for the Doctor of Philosophy degree after successful completion of the preliminary examination. This is an oral examination conducted by the student's POS Committee; it is intended to assess whether or not the student has 1) met doctoral-level standards for general knowledge in chemical and biological engineering, in supporting subject areas, and in the student's area of expertise; 2) developed the capabilities or facilities needed to complete his or her research project; and 3) can demonstrate the ability to use such knowledge and to orally communicate it to others. A written research proposal, prepared by the student, should be given to the committee in advance of the examination. The proposal should present the significance of the problem and the objectives of the research, a review of the present state of knowledge in the area, a description of the research plan, results to date, and plans for completing the project. The format for this proposal may be similar to that used for the final dissertation. Immediately prior to the preliminary examination, the student will present to the department and the POS Committee a public seminar describing the proposed research and any preliminary results.

The preliminary examination must be completed (written proposal, seminar and oral exam) within **two years** of being admitted to the Ph.D. program for students directly pursuing the Ph.D. and **one year** after completion of the M.S. degree for students who complete an M.S. first. If the student is unable to meet this timeline, the student must submit a memo to the Graduate Committee requesting a delay. The memo must explain the cause of the delay and be approved by the major professor. The preliminary examination must be completed no earlier than 6 months prior to the final defense.

At least two weeks before the date of the preliminary examination, the student must submit a Request for Preliminary Examination form to the Graduate Office. This form is available from the CBE Graduate Program Office, 2157 Sweeney. Following successful completion of the preliminary examination, the student is formally admitted to candidacy for the Doctor of Philosophy degree.

4.5 Satisfactory Progress

Graduate students with teaching or research assistantships or industrial fellowships can expect continued financial support as long as they are in good standing and are making satisfactory progress towards their graduate degrees. Although special considerations may apply in individual cases, it is expected that students making acceptable progress will be able to meet the following timetable:

Timetable for students with a B.S. in ChE who are admitted directly to the Ph.D. program

<u>Event</u>	<u>Time since entry</u>
Admission to Ph.D. program	1 year

Program of Study Meeting	no later than 1.5 years
Preliminary Exam	no later than 3 years
Final Oral Exam	4 - 5 years

Students who first obtain an Iowa State University M.S. degree

Ph.D. Program of Study Meeting	Within one semester following M.S. degree
Preliminary Exam	Within 1 year of M.S. degree
Final Exam	2 - 2.5 years of M.S. degree

4.6 Unsatisfactory Progress

4.6.1 Coursework

Graduate students whose GPAs fall below 3.0 will be on probation the following semester. New graduate students whose GPAs fall below a 3.0 will be given a warning the following semester and placed on probation the semester after if their GPA is still below a 3.0. Furthermore, if a student flagrantly neglects coursework or assistantship duties, thereby violating terms of the assistantship contract, the department can suspend his or her assistantship for the following semester.

In either case, appointments of students not showing satisfactory progress and failing to bring their GPA above 3.0 at the end of the semester that they are on probation will be terminated, and they may be dropped from the departmental graduate program. The student's major professor may petition the departmental committee to allow the student to continue working towards a degree. In this case, the student will no longer receive an assistantship unless the major professor decides to provide full or partial funding.

4.6.2 Research

CBE department practice is oriented to ensure graduate student success. We invite feedback as to how we can continue to improve in this regard. However, the path to success can have periods of unsatisfactory progress and that is what is addressed in this section.

All students will likely receive feedback throughout the year, the form of which may vary with major professor. If you are uncertain, make an appointment to speak with your adviser. When the feedback you receive is that your work is unsatisfactory, you should make sure you understand the reason and determine what your major professor expects you to accomplish by a stated time. Therefore, an intermediate review can be made to determine if you are once again making satisfactory progress.

Unsatisfactory progress will likely result in a series of consequences should performance not improve sufficiently. Those consequences may include:

- Informal notice from the major professor of unsatisfactory progress
- Formal written notice from the major professor of unsatisfactory progress with copy to the CBE department
- ChE 699 grade of lower than B
- Formal written notice of when Fellowship/Assistantship support will be terminated or reduced if goals are not met
- Termination or reduction of support
- Termination of graduate study

Rarely would anything beyond the first three bullets occur. However, when underperformance is considerable or flagrant, multiple consequences could occur within a given semester. Cases of academic or research misconduct would likely be addressed through the judicial system. These and other types of misconduct are detailed in Chapter 9 of the Graduate College Handbook, www.grad-college.iastate.edu/common/handbook, and are in a different category than Unsatisfactory Progress; but cases of unsatisfactory grades are addressed there also. Termination of graduate study is addressed in this same section under "Dismissal" where the procedure and student safeguards are addressed.

4.7 Research Rubric

Criteria	Exemplary (4 - 5)	Good (2 - 3)	Needs Improvement (0 - 1)
Understanding and defining the problem	Clearly defines the problem. Outlines necessary objectives in an efficient manner. Places problem within context of previous knowledge and what is not known about the problem.	Formulates a clear and specific problem statement. Does not gather extensive information.	Offers ambiguous definition and interprets problem narrowly. Does not seek sources of information.
Understanding of fundamentals related to the problem	Show good understanding of fundamental principles of phenomena being studied.	Have trouble connecting knowledge of fundamental principles to problem being studied.	Fails to show good understanding of fundamental principles.
Use and integration of information	Throughout the process, demonstrates ability to gather and use a broad spectrum of resources and information. Integrates information with knowledge and research strategies. Applies and integrates previous knowledge to current problem.	Identifies and finds resources to help solve problem and can interpret information. May have difficulty using information effectively in research. Does not consistently gather extensive information and/or use it to solve the current problem.	Fails to see relevance of gathering information. Obtains information from limited or inappropriate sources. Expects others to make connections between information gathered and the problem.
Designing and Conducting Experiments			
Design	Able to develop and describe planned experiments that relate to the research problem. Hypotheses clearly relate to previous knowledge. Can identify necessary steps and timeline.	Formulates a hypothesis and develops a project, experiment, or series of experiments that will address the problem. Anticipates possible outcomes.	Fails to formulate hypothesis to test. Does not express possible outcomes.
Use of evidence	Continuously uses results to refine research plan. Draws correct conclusions from results and generates presentation information (e.g., plots, tables,) that consistently aid understanding of the problem. Explores new ways of doing tasks.	Adjusts experimental plan on basis of new knowledge. Usually plots/tabulates results and performs calculations to aid reaching conclusions.	Does not base conclusions on evidence. Calculations contain errors.
Analyzing, Interpreting, and Communicating Results			
Use of analytic tools	Demonstrates ability to successfully use new analytical tools and procedures. Can describe the rationale for these processes.	Attempts to use analytical tools (e.g., statistics) in relation to the research process. May not be successful.	Does not evaluate sources of error. No replicates or control experiments are performed.
Interpretation of data	Relates solution to theory and research. Able to describe conclusions in a clear and concise manner using own results and those cited in the literature. Contrasts results with those expected from hypotheses.	Interprets results and draws conclusions based on the data.	States conclusions without justification. "Hopes" the answer is correct. Does not consider internal consistency of results. Does not link cause and effect based on data.
Analyzing alternative interpretations and solutions	Proposes limitations and alternative interpretations. Able to account for unexplained results.	Uses information gathered to refine original problem.	Fails to look at solution relative to the original question.

Models	Develops original and groundbreaking conceptual and/or mathematical models. Uses model to explain results which cannot be reconciled with other models.	Extends, refines, or falsifies known theory and/or models.	Does not consider implications for models or theory.
Oral Communication	Exemplary (4 - 5)	Good (2 - 3)	Needs Improvement (0 - 1)
Organization	Presentation is clear and logical. Listener can easily follow line of reasoning.	Presentation is generally clear. A few minor points may be confusing.	Presentation is very confused and unclear. Listeners cannot follow it.
Content	Information given is consistently accurate and clear. Implications of results and "where do we go from here" discussed.	Description of project and results is generally clear. No significant errors are made. Listeners recognize errors as result of oversight or nervousness. Some discussion of what results mean.	Description of project and results is very difficult to follow. No discussion of meaning of results. Inaccurate information provided.
Use of visual aids	Aids prepared in professional manner. Font is large enough to be seen by all. Well organized. Main points stand out.	Aids contribute, but not all material supported by aids. Font size is appropriate for reading.	Aids are poorly prepared or used inappropriately. Font is too small. Too much information is included.
Responsiveness to audience	Responds well to questions. Restates and summarizes when needed.	Generally responsive to questions.	Reluctantly interacts with audience or avoids audience interaction. Responds poorly to questions.
Written Report			
Introduction and background	Discusses rationale for project. Presents background information, with references, relevant to the study. List of complete citations in appropriate style at end.	Gives general description of the purpose of the study, but some relevant background information may be missing. Some references may be incomplete/in incorrect style.	Provides little or no information on why the study was done. No background information given. Few or no references are given. Style is incorrect and/or incomplete.
Methods and results	Concisely describes methods and presents results in tables or figures.	Methods insufficiently described. Some results presented, but may be incomplete.	Most key pieces of information are missing. Insufficient results are presented, or several errors in calculations are present.
Discussion	Clearly discusses what results mean and what conclusions may be drawn from them. Cites published standards or other related reports.	Generally clear discussion of results and conclusions, but may miss some points. Some use of references and published standards.	Reader can gain very little information about why the project was done and what the results may mean. No reference to other studies.
Style	Writing is free of errors in grammar, punctuation, capitalization, and spelling. Flows smoothly. Logical connection of points. Follows standard organizational style.	Writing is generally error-free. Sentence flow is generally smooth and logical. Standard style is generally followed. Minor errors may be present.	Errors are frequent and distracting, so that it is hard to determine meaning. No logical connection of ideas or flow of sentences. Voice may change randomly. Journal paper style is not followed.
Overall Assessment	Clearly and concisely articulates the research process and applies it to current problem.	Understands the research process, but it does not apply to current problem.	Goes through the motions of solving the problem with no real understanding of the process involved.

4.8 General Requirements

4.9 Graduate Seminar

Register for Graduate Seminar, ChE 601, each semester and attend all regularly scheduled seminars.

4.10 Graduate Teaching Participation

An important component of graduate study is learning to teach; this objective is partially achieved in the curriculum through a teaching practicum, Ch E 698. Ch E 698 is comprised of two components, a weekly discussion group and 1–3 terms as a teaching assistant. Each doctoral student is required to complete at least two terms, with the potential requirement of a third term depending on core course performance as described in §4.4.1. Each MS/ME student is required to complete one term of teaching assistance as part of their practicum. The scheduling of teaching assistance terms will be determined in collaboration with the major professor and the associate department chair. Students may also apply for faculty intern positions. These highly competitive positions provide opportunities for interested and qualified students to teach a portion of a lecture course and is a great opportunity for students interested in academic positions.

5 COMPLETION OF PROGRAM

Before graduation, the student must prepare a thesis or dissertation (or a special report in the case of M.E. students). Besides thesis preparation, the student has other responsibilities. The student and major professor must determine whether or not the results are to be published and what the student's responsibilities are in the publication process. It is normally expected that the student will at least complete the draft of a research paper prior to departure. The laboratory and office space occupied by the student should be left clean, with all equipment left or returned to storage in good condition. The student and major professor will decide to what degree experimental apparatus will be disassembled. Keys are to be returned to the General Services Building. If termination is at some other time than the end of an appointment period, the student must sign a resignation form.

5.1 Diploma Slip Form

By the beginning of the semester of graduation, the student will submit a Diploma Slip form to the Graduate College Office. This form is available at the Graduate College website under Forms. It will be necessary to submit a new Diploma Slip form if the student does not graduate in the indicated semester.

5.2 Thesis or Dissertation Preparation

The Graduate College offers several resources and seminars to help you prepare your thesis or dissertation (see www.grad-college.iastate.edu/current/thesis/resources). The CBE department will pay to have your thesis soft bound. **Students are allowed to print only one copy of their thesis/dissertation on the departmental printer and the rest should be made at a Copy Center or off-campus printing site.** Students need to submit to the CBE Graduate Program Office at least two copies of their thesis in final format (one for the department and one for the major professor) and any additional copies (up to eight) they may wish for themselves or others. If you wish to have a hard-bound copy, you need to pay the difference.

5.3 Final Examination

As a part of the final examination procedure, candidates for the M.S. or Ph.D. degree are expected to give a public seminar to present and defend their research dissertation. The final examination for the M.S. and Ph.D. degrees consists of a one-hour general presentation in a public seminar, followed during the same week (preferably the same day) by a more detailed oral presentation and examination by the candidate's POS Committee. The public seminar should be scheduled at a time during which the POS Committee and most of the graduate students and faculty can attend.

The M.S. or Ph.D. student must submit a Request for Final Oral Examination form to the Graduate College Office **at least three weeks before the examination**. Copies of the form are available in the CBE Graduate Program Office or at www.grad-college.iastate.edu/forms/forms.html. The Graduate College must approve changes in the membership of the Program of Study Committee before the final examination occurs.

5.4 Graduate Student Approval Form

After the Final (oral) Exam, the student must complete a Graduate Student Approval form. Individuals from various offices sign this form to indicate that the student has completed the degree requirements and has met all other obligations to be eligible for the degree. The form is available online at http://www.grad-college.iastate.edu/common/forms/files/Graduate_Student_Approval_Form_r.pdf

5.5 Check-Out Procedure

Each graduate student must arrange a checkout procedure within his or her group as established by the major professor. Students employed by other centers, institutes, or laboratories within the university must also comply with their checkout procedures.

See Bellinda in 2162 Sweeney Hall for the departmental checkout procedure. She will also schedule an exit interview for you with the department chair.

5.6 Employment

Prior to graduation and departure, most students will seek employment. Employer representatives visit campus all during the year, but the prime interviewing season begins at the end of September and continues into January and February. Students should visit the Engineering Career Services Office, 308 Marston Hall, for further information. For graduate degree students, contacts made through their research activities, networking and online are often most effective.

Many companies offer interview trips to prospective employees. Students should check with their major professor and supervisor (if a teaching assistant) before going on interview trips. Students on appointment must submit a Travel Notification Form (Personal) for CBE Graduate Students form prior to departure (www.cbe.iastate.edu/current-students/forms).

6 GENERAL PROCEDURES

6.1 Absences from Campus

The major professor must approve graduate student absences (other than university holidays) in advance. Graduate students serving as a teaching assistant must inform the professor they are working with of any absence during the time they are TA-ing. Please complete the Personal Travel Notification form, found at www.cbe.iastate.edu/current-students/forms. This form will need to be completed, signed by traveler and major professor, and given to Bellinda two weeks prior to travel.

6.2 CEGSO

The ChE Graduate Student Organization (CEGSO) was founded for the purpose of promoting interaction among the students of the department. Today, the organization not only works to achieve a pleasant work environment, but also strives to promote awareness of more global concerns. CEGSO sponsors lectures that address topics outside the field of ChE and encourage open discussion.

The CEGSO web page includes student and group profiles, honors/awards, and updates current happenings in the department concerning graduate students <http://stuorgs.engineering.iastate.edu/cegso/>

Events during the year such as picnics, potluck dinners, canoeing and sports teams provide an excellent way for CEGSO members to interact in a social setting. CEGSO members show prospective graduate students

around the campus and city during visits. Members also help incoming graduate students with problems such as getting to Ames from the airport and where to live. Club membership is currently limited to ChE graduate students, although members are encouraged to bring guests to the functions. To become a member of CEGSO, simply pay your dues at the beginning of each semester. An announcement is made as to when and where the money should be paid.

2014-15 CEGSO Cabinet

President	Kiva Forsmark
Vice President.....	Jacob Nuhn
Treasurer.....	Srikanth Nayak
Secretary	John Matthiesen
Faculty Adviser	Eric Cochran

6.3 Copiers

The copy machines in 2112 Sweeney Hall or 2162 Sweeney Hall may be used for research-related material approved by your major professor; **they should not be used for personal use.** The copiers at the Library may be used for personal copying. **Students are allowed to print only one copy of their thesis on the departmental printer and the rest should be made at a Copy Center or off-campus printing site.**

6.4 Forms

All graduate student forms can be found in the Graduate Program Office, 2162 Sweeney Hall or online. Students should refer to the Graduate Timetable included in this handbook for dates when the various forms are due.

6.5 Graduate Student Lounge

The graduate student lounge is in 1021 Sweeney. It is equipped with a microwave, refrigerator, coffeemaker, table and chairs. This room will be available to graduate students only for eating meals and for interaction among students. CEGSO announcements and other related information will be posted in this lounge. Each graduate student will be provided with a key to the grad lounge.

There is an undergraduate/graduate student study room available in room 3149 Sweeney. This room is a nice place for grads and undergrads alike to study, have meetings, and use of several computers.

6.6 Job Postings

Job postings formerly posted in the lounge are now available on CyHire (formerly ISU CMS) through the Engineering Career Services Office, www.engineering.iastate.edu/ecs. Graduate students are encouraged to sign up for career assistance with Engineering Career Services on the 4th Floor Memorial Union, Phone: 294-2540 and email: ecs@iastate.edu.

6.7 Mail

Graduate students have mailboxes in 2112 Sweeney (21 21 Sweeney for new students). Mail is delivered daily around 11 a.m. Students should check their mailbox regularly for department announcements. Campus mail can be mailed from that room also. Personal mail should **NOT** be delivered to or sent from the department office.

At the beginning of every month, the department emails an internal update of department happenings to all CBE graduate students, faculty and staff.

6.8 Offices

Office and laboratory space is made available for each graduate student. Space is assigned by the department chair and the program assistant in the Graduate Program Office. Key cards can be obtained from the Graduate Program Office, 2162 Sweeney Hall, and then taken to the General Services Building where keys

are issued. Graduate students needing to switch keys with another graduate student should stop in 2162 Sweeney Hall and request that a Transfer of Key be entered online. Any lost or stolen keys will be replaced for a \$25 fee.

Each graduate student is responsible for maintaining a neat and safe environment in the assigned office and laboratory. Safety and housekeeping inspections are held frequently.

6.9 Office/Building Hours

The CBE main office, 2114 Sweeney Hall, is open from 8 a.m. to 5 p.m. The telephone number is 515 294-7642. The fax number is 515 294-2689. Administrative offices on campus are also open during these hours. The Graduate Program Office, 2162 Sweeney, is open from 8 a.m. to 3:00 p.m. The telephone number is 515 294-1660. Summer hours may change to 7:30 a.m. to 4 p.m.

Building “open hours” are shown below:

Monday through Sunday open 7 a.m. to 12 a.m.
Holidays locked all day

6.10 Office Supplies

Graduate students are responsible for their own office supplies. There are often old file folders available for student use from the main office if needed (see Bette in 2114).

6.11 Other Services

The College of Engineering and other university centers or laboratories offer a variety of services to aid the graduate students. These include shops for construction of equipment and analytical laboratories. Arrangements for using these services must be discussed with the student’s major professor.

6.12 Outstanding Research and Teaching Awards

The Graduate College and the Department of Chemical and Biological Engineering sponsor two awards to graduate students for outstanding achievement in research and teaching.

6.12.1 Research Excellence Award

The purpose of this award is to recognize graduate students for outstanding research accomplishments as documented in resulting theses and dissertations. These students are also expected to be academically superior and able to not only do research, but develop a well-written product. The program is administered by the Graduate College with additional administrative support from the Graduate Student Senate. Awards are offered each semester and summer session, depending on departmental allocations and prior awards.

Each Research Excellence Award will consist of a letter of commendation from the Iowa State University president and a certificate of achievement from the dean of the Graduate College. Recipients will be recognized in the Iowa State University Commencement Program; documentation will also be made on each student’s transcript. Each term a formal photograph will be taken of recipients with the Iowa State president, the provost and/or the dean of the Graduate College.

6.12.2 Teaching Excellence Award

The purpose of this award is to recognize and encourage outstanding achievement by graduate students in teaching. The program is administered by the Graduate College with additional support from the Graduate Student Senate.

Each Teaching Excellence Award will consist of a letter of commendation from the Iowa State president and a certificate of achievement from the dean of the Graduate College. Recipients will be recognized at the time of graduation – each will be given an honor cord, cited in the Iowa State University Commencement Program and recognized during the ceremony. Documentation will be made on the student’s transcript. Each term a formal photograph will be taken of recipients with the Iowa State president, the provost and/or the dean of the Graduate College.

Recent recipients of these awards in the CBE Department are:

Recent Research Excellence Awards

Spring 2004	Anil Gannepalli	Spring 2007	Ying Liu
Fall 2005	Isa Mbaraka	Spring 2010	Basak Cinlar
Spring 2008	Nicholas Suek	Spring 2011	Seung Ha Kim
Spring 2011	Latrisha Petersen	Spring 2013	David Cantu
Spring 2005	Chieh-Tsung Lo	Spring 2014	Ting-Wei Tee

Recent Teaching Excellence Awards

Spring 2005	Dan Lahr	Spring 2013	Ryan Swanson
Fall 2007	Guy Sander	Spring 2014	Joseph Petefish
Spring 2010	Kerry Campbell	Spring 2015	Kiva Forsmark
Spring 2012	Catherine Brewer		

Recent Zaffarano Prize Winners for Graduate Student Research

Spring 2003	Alain Laederach	Spring 2005	Matt Kipper
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6.13 Telephones

Local telephone calls i.e., within Ames may be made from the hall telephones in Sweeney Hall. Dial 8 to get an outside line. Iowa State phone numbers (those with a 294-, 296- or 572- prefix) may be reached by dialing the last number of the prefix and the last four digits. Long distance calls for research and professional purposes, such as university business, may be made from your major professor's telephone or from your laboratory phone (if available) with permission.

6.14 Travel

Explanation of out-of-state travel authorization and professional advancement grant forms (PAGs)

For students planning on attending a conference, some (if not all) of the following information will apply to you, so please read carefully.

Professional Advancement Grant (PAG) forms are filled out by the grad student to request funding from the CBE department, the Graduate College and the Graduate Student Senate to help support your trip expenses. Each graduate student (who is currently enrolled as a full-time student, who is not classified under "continuous registration" may apply for a Travel PAG). Each student is eligible to receive one Travel PAG per fiscal year (July 1 through June 30 – NO EXCEPTIONS). Travel PAG funds will be divided accordingly to the following strategy: \$30,000 Spring, \$30,000 Fall, and \$15,000 Summer. All graduate students are eligible for up to \$275 per fiscal year from the GSS.

Requests for Travel PAGS can sometimes exceed available funds, so students should apply as early as possible, preferably 8-10 weeks prior to departure and MUST be received at the Graduate College NO LATER THAN TWO WEEKS PRIOR TO DEPARTURE without exception. If you have any questions, please ask or view the "Resources for Graduate Students" section on the PAG website at <https://www-gpss.sws.iastate.edu/students/pag/>.

Procedures for attending a conference are:

1. Check with your major professor regarding the conference you wish to attend. Obtain his or her approval before proceeding with the next step.
2. You will need to set up your own travel arrangements (airline tickets). Currently there are two options.
(a) You may call Iowa State's contracted travel agency – Travel and Transport, 292-8182 – to set up your travel arrangements. The travel agency will then e-mail you your travel itinerary. **Please note that your ticket is not actually ordered until a CBE staff person has completed step 3;** (b) you may

purchase your airline tickets via the Internet (please see Kim in Student Services Office, 2162 Sweeney Hall, for details).

3. Fill out a CBE Out-of-State Travel Authorization form (available in the forms drawer in 2112 Sweeney and online at www.cbe.iastate.edu/current-students/forms) providing the account number to be used to order your airline ticket. Put the completed Out-of-State Travel Authorization and e-mailed itinerary in the IN BOX located on Bellinda's counter in 2162 Sweeney Hall. If Bellinda is gone, information may be given to Bette in 2114. The ticket will then be ordered. Be sure to provide your authorization and itinerary the same day that you have made your arrangements with Travel and Transport.
4. Electronic PAG form is available at <http://www.cbe.iastate.edu/files/2011/08/PAG-Application-7-2012.pdf>. Fill out sections I, II and III. Section IV will already be filled in. Leave Section V blank. (The indicated sections must be filled out completely). The form will need your signature and your major professor's signature. Place in the IN BOX located on the counter in 2162 Sweeney Hall.
5. The completed PAG will then be forwarded to the Graduate College (you will receive a copy for your files). Once the appropriate departments have reviewed the PAG, a copy will be returned to you indicating the amount of support you have been awarded.

7 PURCHASING PROCESSES

There are several different ways of purchasing items at Iowa State; below is information to help you. If you have any questions after reading it, please contact Molly in 2117 Sweeney Hall.

7.1 Chemistry Stores

Purchases through Chem Stores should be made through AccessPlus under the uBusiness tab. Click on Chem Store Ordering, then Create Order. Proceed by filling out the required information for your order.

The screenshot shows the 'Chemistry Stores Requisition' form in the uBusiness system. The form includes the following fields and values:

- Requisition: 1
- Item: 1
- Dept: 02030
- Name: DEANN MARIE PITMAN
- Request Date: 05-21-2010
- Department: CHEMICAL & BIOLOGICAL ENGINEERING
- Status: Create Order
- Requestor: [Text Field]
- Rqstr Phone: 515 294 [Text Field]
- Fund Acct: [Text Field]
- Acct Receivable: [Text Field]
- Dlvry Bld/Rm: [Text Field]
- Attention: [Text Field]
- Comments: [Text Field]
- Total Order Amt: 0.00

A 'Save' button is located at the bottom left of the form. A message at the bottom of the page reads 'Action completed normally'.

- Requestor: Type in your name
- Rqstr Phone: Put in a phone number where you can be reached if questions arise about your order
- Fund Acct: Account number that will pay for the items
- Acct Receivable: This can be left blank
- Dlvry Bld/Rm: This is where you will stipulate "will pick up" or "please deliver to Sweeney Dock" (delivery to Sweeney Dock is FREE)
- Attention: Name of person that should receive the items if different than yourself
- Comments: Brief description as to what the item(s) is for – example, items for XYZ research project in 1234 Sweeney Hall

Then click on Save to proceed to the next screen shown below:

Chem Sto Ordering

Requisition: 005851, Item: 1, Dept: 02030, Name: DEANN MARIE PITMAN

Chemistry Stores Requisition Request Date: 05-21-2010

Department: CHEMICAL & BIOLOGICAL ENGINEERING Status: Incomplete

Requestor: DEANN PITMAN

Rqstr Phone: 515 294 7642

Fund Acct: 701 02 03 00 0270 Acct Receivable: [] [] []

Divrvy Bld/Rm: PLEASE DELIVER TO SWEENEY DOCK Attention: []

Comments: FOR USE WITH THE XYZ RESEARCH PROJECT 1234 SWEENEY HALL

Total Order Amt: 0.00

Buttons: Add Stock Item, Add Non-Stock Item, Save, Cancel

Record added

Click on Add Stock Item or Add Non-Stock Item to enter the items that you would like to order. The following screen will appear:

Add Stock Item

Stock No: [] Keyword/Descr: [] Search by: [v]

Order Qty: 0

Search by dropdown options: Search by, Family, Sub Family, Stock Number, Dept Favorites, Keyword, Keyword List, Description

Buttons: Save

This order has 0 items currently

Action completed normally

If you know the stock number, you can enter that, the quantity, and then Save. If you don't know the stock number, you can type in a Keyword/Description and then search by those options listed above. Once you have found the item you want, type in the stock number, quantity and then click on Save. Then the following screen should appear:

Stock Item

Stock No: 20003149 Status: Active

Order Qty: 1 Unit of Sale: BOX On Hand Qty: 4 Sell Price: 12.5821

Descr: GLOVES, STERLING NITRILE (MBB CORE ONLY) Add Favorite

X-SMALL
FSCO 19-161-590A (150/BOX)
10 BOXES/CASE

Qty Per Pkg: 0 Initials: [] DMP: [] Rcvd Qty: 0 Ext Cost: 12.58

Buttons: Save, Finish, Delete, Add Next Item

Item	Stock Num	Description	Ord Qty	Sts
1	2000.3149	GLOVES, STERLING NITRILE (MBB CORE ONLY)	1	A

Record added

You can now either Save, Finish, Delete or Add Next Item to your order.

If you Finish your order, the following (and last screen) will appear:

IOWA STATE UNIVERSITY

Home Employee uBusiness

Chem Sto Ordering Enter keyword Contact Print Help Hide Tabs

Requisition Item Dept Name
005851 1 02030 DEANN MARIE PITMAN

Chemistry Stores Requisition Request Date: 05-21-2010
Department: CHEMICAL & BIOLOGICAL ENGINEERING Status: Incomplete
Requestor: DEANN PITMAN
Rqstr Phone: 515 294 7642
Fund Acct: 701 02 03 00 0270 Acct Receivable:
Divrvy Bld/Rm: PLEASE DELIVER TO SWEENEY DOCK Attention:
Comments: FOR USE WITH THE XYZ RESEARCH PROJECT 1234 SWEENEY HALL

Item	Stock No	Ord Qty	Rcd Qty	Unit	Description	Ext Cost	Sts
1	2000.3149	1	0	BOX	GLOVES, STERLING NITRILE (MBS CORE ONLY)	12.58	A
Total Order Amt						12.58	

Add Stock Item Save Send Cancel

Record Found

Click on Save to come back to the order later. Click Send to send the order on to Chem Stores to be filled. Clicking Cancel will cancel the entire order.

Once you have clicked on Send, the following message will appear: "This Order has been sent to Chemistry Stores." Your order has now been placed and you will receive an email from Chem Stores alerting you when the item(s) will be delivered to the Sweeney Hall dock.

7.2 cyBUY Purchases

cyBUY is another way to order items (www.purchasing.iastate.edu/cybuy). This program was designed to allow for the procurement of supplies from contracted vendors in a streamlined online marketplace available through AccessPlus. Higher limits, less paperwork, and faster receipt of orders are just a few of the benefits. Once in AccessPlus, click on uBusiness and then cyBUY from the left hand menu. Click on the



icon to see all the companies that are available to purchase from using this system. Find the company you wish to purchase from and proceed with their order form that will appear. It will eventually take you back to the cyBUY base page (see below) where you will need to enter in the account number and a brief description for the purchase before clicking Create Release to complete the order.

Cart - Draft - Windows Internet Explorer

https://solutions.scquest.com/apps/Router/ReqConfigurableCart?ReqId=22826060&ReqId=22826060&trmp=1308075702720

cyBUY Deann Marie Pitman BSU

2011-06-13 DPITMAN 01 | 1 Item(s), 1.87 USD

Cart - Draft Search for Catalog No. (SKU)

active cart | draft carts | favorites | my recent carts

Shopping Cart 1 Item(s) for a total of 1.87 USD

Save Changes Create Release

Cart Name: 2011-06-13 DPITMAN 01
Fund Account/Notes:
Business Purpose:

Supplier / Line Item Details

Fisher Scientific
The item(s) in this group was retrieved from the supplier's website. What does this mean?
Need to make changes? MODIFY ITEMS | VIEW ITEMS Item(s) was retrieved on: 6/14/2011 1:21:42 PM

Product Description	Catalog No	Size / Packaging	Unit Price	Quantity	Ext. Price
SFTY SPEC GRV	19817360	EA	1.87	1 EA	1.87 USD
Supplier subtotal					1.87 USD
Subtotal					1.87
Total					1.87 USD

Shipping, Handling, and Tax charges are calculated and charged by each supplier. The values shown here are for estimation purposes, budget checking, and workflow approvals.

Save Changes Create Release

Internet | Protected Mode: On 125%

Insert fund account number here.

Insert why you are purchasing this item and where it will be kept.

If the company you want to purchase from is not listed under the cyBUY icon, contact them to see if they would accept a credit card as payment, then proceed with the P-Card instructions below. If they do not accept credit cards as payment, you will need to obtain a quote from them and give to Molly to get a Purchase Order # assigned.

7.3 Purchasing Credit Card Purchases (P-Card)

Using the P-card (www.purchasing.iastate.edu/card) provides quicker turnaround time on your orders, widespread acceptance by vendors, and reduced paperwork processing. A P-card is a VISA credit card available to faculty and staff for the procurement of low-dollar (tax free) supplies. When applicable, a P-Card must be used for purchases under \$2,000 - \$3,000 depending on the cardholders assigned level of purchase.

If your major professor would like you to obtain a P-Card, see Molly in 2117 Sweeney and she will begin the process. You will not be able to obtain your P-Card until you have attended an orientation session organized by the Purchasing Department. Those assigned a P-Card are responsible for their card until they leave the CBE department. *No one else is to use his or her card but themselves.*

When a purchase is made, the cardholder is required to fill out a form located in the Forms file cabinet in 2112 Sweeney Hall in a folder named Purchasing Card Worksheet, or an electronic version can be found at: www.cbe.iastate.edu/current-students/forms. Complete the worksheet and obtain appropriate signatures before giving the form and receipts to Molly for further processing. If an order is placed on the web, then you will need to print something off for verification purposes.

Once the purchased item has been received, please sign and date the packing slip confirming that all items were received in good condition and give it to Molly to keep with the paperwork supporting that purchase. Once a month a P-Card statement will come from USBank which Molly will give to you to verify your purchases by signing and dating the statement.

7.4 Purchase Requisitions

A purchase requisition is used to request equipment, supplies or services for purchase over \$3,000 or when a company will not accept a credit card as a form of payment. You will need to obtain a quote from the company to give to Molly along with a short justification as to why the purchase is being made and the account number that will be charged for the purchase (major professor can put this directly on the quote).

These are standard questions any department should ask when buying new equipment:

1. Will it fit through a standard door?
2. Does it require building service connection that is not readily available? (heat/air/water, etc.)
3. Does it require special equipment to be moved?
4. Is the right power available?
5. Is it replacing in-kind equipment?

7.5 Intramurals

This form is used to obtain goods or services from another university department (not to purchase equipment). Graduate students prepare the intramural and have CBE Program Coordinator Kathy McCown sign it. Graduate students usually take the form with them to the selling department.

NOTE: With all orders, be sure to always state what the items are needed for and where they will be kept. The business purpose must be clear and concise.

CARDBOARD BOX RECYCLING. If you have need to dispose of a cardboard box, please empty the bubble wrap or packing peanuts into a trash bag first because they blow around outside. Then always flatten the box and put it in the container on the loading dock. If there are contaminants in the box itself, please see Steph Loveland, chair of the CBE Safety Committee, for proper disposal information. Sweeney's bin is picked up automatically every Wednesday.



GLASS RECYCLING. If you have glass to dispose of, please follow these instructions:

1. It is important that glass is contaminant free. If questions, see your major professor.
2. A yellow container is located on our loading dock. It has a combination lock on the lid with a combination that corresponds to the current calendar year (so it is now 2013). Campus Services will change the combination each year.
3. As Building Supervisor, I will watch the full line on the container and call FP&M at 294-5100 to schedule a pick-up, which is usually on a Wednesday. Please do not overfill the container as it may become too heavy.
4. FP&M is working on obtaining small plastic containers that you can use in your labs to collect the glass and they will bring them to you when available.
5. If questions, please contact Steph Loveland, Safety Committee chair, at 294-3024.



CONFIDENTIAL DOCUMENT DESTRUCTION. There is a gray disposal box located inside 2112 Sweeney that you can use to dispose of confidential papers. Remember, once it is in there, you cannot get it out again, nor can anyone in the department. Bette takes care of monitoring this and letting FP&M know when it is full and ready for pick up.

CATALOG DISPOSAL. CEGSO provides the department with catalog recycling. They have a box inside the door of 2112 for this use. Please note the signage above the box and ask the current CEGSO president any questions you may have.



WHITE PAPER DISPOSAL. Building occupants have recycling bins in their offices. Use this bin to dispose of white non-confidential paper. When your bin is full, empty it into the larger containers located in the building hallways. When these are full, the building custodians put the full large containers on the dock for pickup automatically every Tuesday.

Acceptable White Paper

- Computer paper
- Printer/copier/fax paper
- White tablet paper
- Color printed material
- Card stock
- White envelopes (no plastic window or labels)
- Staples OK - do not have to remove
- To test paper, tear and if inside is white, OK to recycle

Unacceptable

- Colored or off-white paper
- Ground wood paper (green bar)
- Paper ream wrappers
- Address labels/stickers
- Manila folders / cardboard
- Carbon paper / NCR paper
- Newspaper / newsprint
- Magazines / slick paper
- Phone books
- Blueprints
- Glue binding / tape
- Food-related paper
- Plastic of any kind
- Paper clips



OTHER DISPOSAL. Please do not dispose of equipment, supplies, or appliances on the dock itself. When you graduate or leave the department you must personally dispose of all personal belongings from your office including all files, books, and appliances.

Items we have been asked **NOT to put in the dumpster include:** construction material, biological debris, furniture, shipping crates, cardboard boxes, pallets, plant waste or leaves.

If you have questions, please let me know! Thank you so much!