

GRADUATE PROGRAM IN AGRICULTURAL AND BIOLOGICAL ENGINEERING

UNIVERSITY OF ILLINOIS at URBANA-CHAMPAIGN

College of Agricultural, Consumer and Environmental Sciences
College of Engineering

A HANDBOOK

POLICIES AND PROCEDURES

FOR THE

GRADUATE PROGRAM

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Graduate Programs Handbook for Agricultural and Biological Engineering

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Graduate Programs Handbook for Agricultural and Biological Engineering

1. Introduction

Forward

*“Genius without education
Is like silver in the mine”*

Benjamin Franklin (1706-1790)

The purpose of this handbook is to provide pertinent information and to identify sources of information to assist graduate students in the Department of Agricultural and Biological Engineering (including both programs in Agricultural and Biological Engineering and Technical Systems Management). This handbook provides departmental expectations and procedural information for obtaining a graduate degree and may serve as a reference for advisors of graduate students in the Department of Agricultural and Biological Engineering.

Graduate education is central to our identity as a world-class research university. As an integral part of your studies, you collaborate with professors on research and creative projects that contribute to the body of scholarly and scientific knowledge, and solve important problems in agriculture, engineering, technology, and society.

We seek graduate students with the highest credentials. We expect much of the students that we accept. All students must be able to communicate effectively and contribute meaningfully to teaching. We seek to treat our graduate students as professionals and are ever mindful that our graduate students of today are our peers of tomorrow. Ethics and professionalism are extremely important aspects of our graduate education and training. Our department’s legacy lies in the hands of those we graduate.

Mission of the Department

“The mission of the Department of Agricultural and Biological Engineering is to integrate life and engineering for enhancement of complex living systems.”
(Department of Agricultural and Biological Engineering Strategic Plan, 2006)

The Agricultural and Biological Engineering faculty are internationally recognized as measured by productivity in peer-reviewed publications, national and

international awards, faculty-generated grants and contracts, and by their creative teaching, research, and outreach programs. Each year, faculty and their graduate students contribute to the literature base by publishing high quality peer-reviewed journal articles, book chapters, books, and invited papers, and are awarded several million dollars in research grants. Faculty in our department are in demand for speaking, consulting, editorships, editorial-board memberships, offices in professional organizations, and membership on national review panels and committees.

The Department of Agricultural and Biological Engineering is an integral component of the University of Illinois. Departmental faculty interact with numerous other faculty in the College of Engineering, College of Veterinary Medicine, and other units of the College of Agricultural, Consumer, and Environmental Sciences.

The policies and procedures described herein will pertain to all students entering the Agricultural and Biological Engineering Graduate Program in Spring 2008 and beyond. Students already enrolled at that time may follow the requirements in this publication or those in effect when they entered the Graduate Program.

2. Graduate Degree Programs

The Department of Agricultural and Biological Engineering offers a Master of Science (M.S) degree and a Doctor of Philosophy (Ph.D.) degree in Agricultural Engineering. Both require writing a thesis. In addition, there is a non-thesis option for M.S. students who do not intend to seek a Ph.D. This non-thesis option requires additional coursework and documentation of a significant research experience with a significant writing experience; *and is approved very infrequently*. Applicants are admitted into either the M.S. or Ph.D. program, or they are admitted as a non-degree student.

3. Areas of Study

The Department of Agricultural and Biological Engineering offers study in many areas, but the following are some of the broad topical areas:

- Agricultural Safety
- Bioenvironmental Engineering
- Renewable Energy Engineering
- Food and Bioprocess Engineering
- Grain Quality and Milling Properties
- Indoor Air Quality Engineering
- Off-Road Equipment Engineering
- Precision or Site-Specific Agriculture
- Soil and Water Resources
- Water Quality

Technical Systems management

A listing of faculty who advise Agricultural and Biological Engineering graduate students is given in Appendix A. Faculty research programs are shown at: <http://abe.illinois.edu/research..>

The Graduate Program is designed to provide fundamental training in basic and applied areas of Agricultural and Biological Engineering, or Technical Systems Management . After selecting an area of specialization, students are guided by their advisor and to some extent by their thesis committee members in designing a program of study that will develop the knowledge and skills appropriate to the student's professional objectives and career interests. Students usually prepare for careers in basic or applied engineering in the agricultural industry, universities, governmental agencies, or engineering-consulting firms.

4. Policies Applying to All Graduate Students

The major policies applying to all graduate students are found in five University of Illinois Urbana-Champaign (UIUC) publications:

1. *A Handbook for Graduate Students and Advisers* is located at:

<http://www.grad.uiuc.edu/gradhandbook>

This handbook is prepared by the UIUC Graduate College and is updated every year. This handbook provides minimum campus requirements with stipulations that departmental requirements may be higher than those minimums. Each graduate student should maintain a copy and become familiar with its contents.

2. *The Graduate Programs section of the UIUC Programs of Study*.

This book is updated every two years. It is available at:

<http://www.courses.uiuc.edu/cis/programs/urbana/2007/fall/>

3. *UIUC Code of Policies and Regulations Applying to All Students*

This publication is updated and published in August of every year. It is available at: <http://www.admin.uiuc.edu/policy/code/>

4. *Instructions for Preparation of Theses*

This publication describes in detail the requirements of the Graduate College for the preparing, formatting, and printing of your thesis. It is available at: <http://www.grad.uiuc.edu/thesis/thesishandbook/>

5. *UIUC Handbook - Student and Family Life in an International Community*, Office of International Student Affairs.

This publication provides excellent information for international students about health insurance, income taxes, immigration law, legal rights and responsibilities, the U

of I academic system, and about living in the U.S. and in Champaign-Urbana. It is available at: <http://www.ips.uiuc.edu/issr/about/index.php?catID=1&pageID=55>

All of these publications have been prepared for your information and regular referral.

5. Admission Requirements

B.S. Degree and GPA

College graduates must have an undergraduate B.S. degree in Agricultural Engineering or a related engineering field, with a grade-point average (GPA) of 3.00/4.00 (A=4.00) on the last 60 hours of undergraduate coursework, and three supporting letters of recommendation to be considered for admission. TSM applicants must have an undergraduate B.S. degree in technical systems management, or a related agricultural, science or business field.

GRE

The Graduate Record Examination (GRE) is required for all candidates who want to be considered for admission. No minimum GRE score is required for admission, but a composite score (verbal + quantitative + analytical) of 1700 (paper based) or higher; or scores with a percentile as shown in Table 7.1 on page 9 is required for fellowship consideration. A GRE score of 1700 or equivalent (as shown in Table 7.1) is required for assistantship consideration for applicants who have not received a degree from an U.S. institution. Graduate Record Examination information is available at: <http://www.gre.org> or from Educational Testing Service, P.O. Box 6000, Princeton, NJ 08541-6000. (609) 771-7670 or e-mail (available from the web page).

TOEFL

All applicants whose native language is not English must take the Test of English as a Foreign Language (TOEFL). Applicants should make testing arrangements with the TOEFL Application Office, P.O. Box 6155, Princeton, NJ 08541-6155 or <http://www.toefl.org>. An applicant may be exempt from the TOEFL test if they have completed at least two years of full-time study in a country where English is the primary language and in a school where English is the primary language of instruction. While the University requires a minimum score of 550 on the paper-based TOEFL test (213 on the computer-based test; 82 internet based test), the Agricultural and Biological Engineering Graduate Program requires a minimum score of 570 (230 in computer-based test; 88 internet based test) to be considered for admission. TOEFL concordance table for converting computer scores to paper scores is shown in Appendix B. A TOEFL score of 570 (230; 88) or higher is required to be considered for assistantship support if the applicant has not previously received a degree from a U.S. institution. A student whose native language is not English must achieve a minimum TOEFL score of 607 (253; 101) or the English Placement Test is required. The English Placement Test is given on campus by the Department of English and determines the

appropriate English as a Second Language (ESL) course(s) that will be required. Upon successful completion of the recommended ESL courses, the student will have met the TOEFL requirement and will be eligible to be taken off Limited Status. Students can not receive a degree while on Limited Status.

TSE or SPEAK Tests

All students whose native language is not English are required to take the Test of Spoken English (TSE) or the SPEAK test either prior to or within their first year of enrollment. The SPEAK test is a University of Illinois standardized version of the TSE test and is given at no charge to the student. The minimum passing score is 50 for either test. Illinois State Law Senate Bill 1516 requires a score of 50 for students whose native language is not English to be allowed to provide classroom instruction. If a score of 50 is attained, you will be eligible to attend the next available 2-day International Teaching Assistant's Orientation (Given in August or January once each semester) followed by the 2-day all campus orientation for new teaching assistants.

Your advisor will use your TSE or SPEAK scores to help in recommending to you which significant teaching experience items would be most suitable to your expertise. Students obtaining scores below 50 will be given recommendations for taking particular English as a Second Language (ESL) course(s) or possibly for obtaining an English tutor. After such English instruction, the exam can be retaken. Arrangements to take the TSE can be made through the Educational Testing Service (ETS) prior to arriving on campus or the SPEAK tests can be taken on campus through the Center for Teaching Excellence (CTE), 249 Armory Building, 505 East Armory Avenue Champaign, IL 61820 (217) 333-3370.

Foreign Language

Knowledge of other languages and international travel experiences are encouraged and are highly desirable. However, there is no formal requirement of foreign language for admission to the Agricultural and Biological Engineering Graduate Program.

6. Types of Graduate Status

Full Standing

Full standing is the status, which all graduate students must attain in order to graduate from their degree program at the University of Illinois.

Limited Status

Candidates with a GPA less than 3.00/4.00 (A=4.00) from the last 60 hours of coursework, but with superior academic records or special backgrounds, abilities, and interests may be admitted on limited status.

In some cases, a candidate with a B.S. engineering degree may be admitted on limited status because some additional undergraduate courses are needed in order for the B.S. degree to be considered as an “equivalent” engineering degree to the agricultural engineering degree. In this case, the additional courses would be prescribed by the Graduate Program Director at the time of admission. These course deficiencies must be passed with a grade of B or better within the first two semesters of enrollment.

In some rare cases non-native English speaking candidates who are lacking a current TOEFL score, but otherwise have superior academic records or special backgrounds, abilities, and interests may be admitted on limited status. Limited status can be removed by attaining a TOEFL over 570 (230, IBT 88) or by completion of the recommended ESL courses.

It is the student’s responsibility to inform their advisor when all limited status requirements have been met and to show such verification to the Departmental Graduate Program Director. Then a departmental request for full standing will be sent to the Graduate College. A student must have full standing in order to graduate.

Non-degree Status

Non-degree status provides an opportunity for a very highly motivated student to obtain a graduate degree in agricultural and biological engineering. Non-degree status situations usually arise when a candidate is very strong academically but has a B.S. degree in a non-engineering discipline. In this case, the Graduate Program Director prescribes a list of courses that would provide “B.S. agricultural engineering degree equivalency.” These equivalency courses would be taken under non-degree status. A candidate considering this option should review the Non-degree Status section in the *Handbook for Graduate Students and Advisers* to be aware of some important registration limitations as well.

7. Fellowships, Assistantships and Other Financial Support

The Department of Agricultural and Biological Engineering offers a limited number of graduate fellowships and assistantships on a competitive basis. This support is intended to attract and retain outstanding candidates for the Ph.D. and M.S. degrees by enriching the academic experiences of the student. Financial aid may be requested on the application form for admission to graduate study. Candidates, who wish to be considered for fellowships, must send in their completed application materials prior to December 1 in order to receive full consideration for fellowships for the following fall semester. For candidates who wish to be considered for assistantships, completed application materials should be received five months before

(December 15 for summer, March 15 for Fall, and August 15 for January) the matriculation date in order to receive full consideration for assistantships in the following semester.

International applicants must submit evidence that they have sufficient financial support for the length of their graduate study program. Graduate appointments are initiated with Change of Status forms by the Department. The terms of appointment may differ, depending on the nature of the responsibilities and student qualifications.

Fellowships

Fellowships provide monetary stipends, tuition waiver and waiver of some student fees. Fellowship holders may, with approval, accept an additional part-time teaching or research assistantship with an additional stipend, but must register for the equivalent of at least three units of graduate credit each semester and one unit in the summer session. Fellowship holders are encouraged to be involved with research, teaching and other departmental activities. USDA National Needs Fellowship holders are required to have a significant teaching experience. For all graduate students, including Fellowship holders, experience in teaching is considered an important part of the graduate experience and is strongly recommended. Possible steps for obtaining a significant teaching experience are listed in the Significant Teaching Experience section.

Many types of Fellowships are available to students in our department. Most require U.S. citizenship and a composite GRE score over 1700 or as shown in the table below. The Jonathan Baldwin Turner Fellowship requires an undergraduate GPA and GRE score as shown below:

Table 7-1. JBT Fellowship Requirement for GPA and GRE

GPA/ 4.0 on last 60 hours ¹	GRE minimum average percentile ²
3.65	60
3.60	65
3.55	70
3.50	75
3.45	80

¹ The last 60 undergraduate hours are used for M.S. applicants; while the last 60 hours including M.S. work are used for Ph.D. applicants.

² Average of the percentile for Verbal, Quantitative and Analytical or for Verbal, Quantitative and Writing, depending on which test version scores are available.

To continue the JBT Fellowship a graduate GPA must be maintained above 3.5/4.0. The USDA National Needs Fellowship requires an undergraduate GPA of 3.5/4.0 and maintaining a graduate GPA above 3.5/4.0. SURGE Fellowships are available for underrepresented students and minorities. There are also NSF, Carver and many other types of fellowships available through the University of Illinois.

Fellowship income is subject to income taxes, after subtraction of tuition, fees, and the cost of books and supplies required for course work. However, in accordance with a U.S. Internal Revenue Service ruling, the University neither withholds income taxes from stipend checks nor reports the income to the federal government. Reporting of the income is the responsibility of the student holding the fellowship.

Assistantships

Assistantships offer employment in research or teaching. An assistantship appointment of one-quarter to two-thirds time for 91 days or more during a semester provides a stipend and exempts the student from tuition and some student fees (Service Fee) for that semester. Time commitments are based on a 40-hour workweek. Thus, a one-half time appointment requires an average of 20 hours per week, which may be spent on research or on a combination of teaching and research. A student holding a one-half time assistantship will normally be asked to provide up to 10 hours per week of assistance with course teaching activities. Experience in teaching is considered an important part of the graduate experience and is strongly recommended. Possible steps for obtaining a significant teaching experience are listed in the Significant Teaching Experience section.

Assistantship stipends are set annually before the fall semester. Assistantship rates are quoted for a one-year period but are actually paid out over a 9-month (August 16 to May 15) plus 2-month (May 16 to July 15) period. Thus, the annual rate is paid over the first 11 months and the assistantship holder must budget appropriately because they will not receive a check for the July 16 to August 15 period. No vacation days are earned; but the July 16 to August 15 period is in effect an unpaid vacation period. With advisor approval, students may be allowed to trade days to other times of the year.

Contingent upon satisfactory academic progress, satisfactory discharge of duties associated with the appointment, graduate assistantships are renewable for up to 18 months for support for M.S. degree candidates and for up to 30 months for support for Stage 2 and 3 Ph.D. candidates. Funding beyond these periods may be possible depending on availability of funds, progress toward the degree, and advisor and departmental approval.

Assistantship stipends are taxable and taxes are withheld from monthly paychecks. The associated tuition waivers are not taxable.

Usual and maximum course loads for students on assistantship are given in the Handbook for Graduate Students and Advisers and are also listed in Appendix C.

Part-Time Hourly Employment

Part-time hourly employment in the Department carries an hourly stipend and does not qualify the student for a waiver of tuition and student fees. Employment is dependent on a faculty member needing temporary help on a funded project.

Need-Based Financial Aid

Other financial aid loan information, financial aid scholarships and federal work-study is available through the Office of Student Financial Aid (<http://www.osfa.uiuc.edu>), 610 Eat John Street, Champaign, IL 61820 or refer to the Office of International Affairs website at <http://www.ips.uiuc.edu/ISSS>.

8. Registering for Classes

Computer Account

Graduate students must apply to the Computer Department Manager, Computer Services Office for a student computer account to enable using Banner for registration and for e-mail purposes. The National Center for Supercomputing Applications, located on the UIUC campus, provides access for faculty and student research that demands high-powered computing support. The College of Engineering provides many workstations available to graduate students and The College of ACES Computer Laboratory is available to graduate students during off-hours on a special arrangement basis. In addition, the Department of Agricultural and Biological Engineering has a microcomputer laboratory available to departmental graduate students. Finally, students working on specific research projects may have access to equipment under the direction of their advisor.

Banner

Registration is accomplished by the Banner computer-based registration system. If you are currently enrolled at the UIUC campus, you may register early for the next semester.

Auditing

If you wish to be an official auditor in a course without registering for credit, you may complete a "Visitor's Permit" form, have it approved by the course instructor and submit it at the Registrar's Service Window, 100 Henry Administration Building along with the appropriate fee, if any. Such courses are not to be included on the registration schedule. Official audit courses are noncredit and appear on your transcript. They cannot be converted to a credit basis or be repeated for graduate credit.

Course Adding and Dropping

The Graduate College calendar (www.grad.illinois.edu) specifies deadlines for adding and dropping courses. These changes may be made on-line. The dates may be obtained from the graduate calendar. Any changes after the deadlines must be justified in writing by your academic advisor and signed by the Head of the Department.

9. Advisor and Thesis Topic Selection

*“What lies behind us and
what lies before us are
small matters compared
to what lies within us.”*

Ralph Waldo Emerson

Your academic/ thesis advisor will help you select courses, develop a research project, and understand Departmental and University requirements. A student's interest area has usually been identified in consultation with a faculty member prior to the time of admission to our department and students are initially assigned to an advisor with that particular research interest. If you should choose to change faculty advisors, such change can usually be accommodated with mutual agreement of the advisors involved. You should then notify the Main Office, 338 Agricultural Engineering Sciences Building (AESB) of the change.

In addition to your academic advisor, you may consult with and seek advice from any member of the faculty. Students often consult with several faculty members, especially the members of committees selected by the student and the academic advisor to oversee thesis or dissertation projects.

Although your advisor can assist you in many instances, it must be emphasized that you ultimately are responsible for decisions affecting your academic progress. You should expect to rely largely on your own effort rather than expecting others to take responsibility for your success. Admission into the graduate program does not convey an obligation on the part of your advisor, the Department, or the University to ensure that you successfully complete the requirements for a graduate degree.

Dr. Michael C. Loui, former Associate Dean of the Graduate College and Professor of Electrical and Computer Engineering, wrote an excellent article on *How to Choose a Thesis Advisor* (Appendix D.)

10. Policy and Procedures for Master of Science Degree Programs

The following policies and procedures have been established to maintain the standards of excellence associated with Master of Science degree programs for students majoring in agricultural and biological engineering and to provide for an orderly culmination of the programs. Departmental special requirements as well as the

requirements of the Graduate College are summarized in the following statements pertaining to the Master of Science program in agricultural and biological engineering.

1. A thesis will be required for the Master of Science Degree unless the candidate can demonstrate that he/she has previously had such experience. Where the candidate feels he/she has had responsibility for research or development work providing an educational experience comparable to that of completing a thesis, petition may be made to the Departmental Graduate Committee requesting waiver of the thesis requirement in lieu of a graduate program containing 36 hours of coursework. Such petitions should be made at or before the initiation of graduate study. No special forms are required for the petition but complete supporting documentation should be provided.
2. A total of 32 hours of course credit, consisting of a minimum of 24 hours of formal course credit and 8 hours of research course credit (ABE 599) will normally be required. As part of the minimum 24 hours of formal course credit, the following coursework will normally be required for the degree in Agricultural and Biological Engineering program unless previously taken. No course shall be double counted for more than one requirement. For specific required course, see List of Math, Statistics & Electronics Courses:
(http://abe.illinois.edu/grad_programs/grad_requirements)
 - a. A 500 level formal course in area of specialization (normally not a Special Problem; no Independent Study is allowed).
 - b. Instrumentation and measurement.
 - c. Statistical design and analysis.
 - d. At least one course in mathematics beyond differential equations.
 - e. One or more courses in other departments pertaining specifically to the area chosen for research.
 - f. (Note: Items b, c and d do not apply to TSM program)
3. Action to correct any deficiencies that are apparent in the candidate's technical or writing ability should be required by the advisor early in the graduate program before the candidate is allowed to present a thesis.
4. The thesis advisor and the subject to be investigated should be chosen *early in the first semester of graduate study* so that definite progress can be made during that term in review of literature, planning of the research program and selection of future coursework. Departmental section leaders will acquaint the candidate with opportunities for research and faculty available to serve as thesis advisors.
5. Responsibility for conduct of the research, analysis of the results, and writing and preparation of the thesis rests with the candidate. The thesis advisor will serve only as an examiner, critic, and counselor from the beginning of planning for the investigation to completion of the thesis.

6. Limited resources both within the department and the university make it imperative that graduate students make satisfactory progress toward a degree. Financial assistance to one-half time assistants will normally be limited to three semesters plus one summer session. All requirements for the degree are to be completed within five calendar years.
7. An examining committee consisting of three to five members, including the thesis advisor, will be appointed by the department to judge whether:
 - a. The progress of the student has been satisfactory,
 - b. the thesis is acceptable,
 - c. the student has the proper concept of the profession, and
 - d. the extent to which the graduate study has contributed to his/her professional consciousness and development.

The examining committee may include, in addition to faculty from various subject matter areas of the University, individuals from outside the University who have a particular interest and competence in the area of the thesis research. The committee is appointed by the Department Head in response to a request from the thesis advisor. The chair and at least two additional members of the examining committee must be members of the Graduate Faculty. A suggested procedure for activating the committee includes:

- a. Consultation between student and advisor regarding appropriate committee membership.
 - b. Informal contact with those selected, by either student or advisor, to ascertain willingness to serve.
 - c. Proposal of committee membership to Department Head by the advisor.
 - d. Notification of appointment to chair and committee members by Department.
 - e. Scheduling, convening, and reporting of the results of the examination by the chair.
8. Minimum deadlines to complete requirements to meet thesis deposit deadlines as specified in the calendar of the Graduate College are:
 - a. The department will appoint the committee to examine the candidate no later than four weeks prior to the thesis deposit deadline.
 - b. The examination is to be held at least one week prior to the thesis deposit deadline.
 - c. Copies of the thesis are to be in the hands of the examining committee at least seven days prior to the examination.
 - d. The chair of the examining committee will convey the recommendations of the group to the Department Head in writing at the close of the examination.
 9. When the thesis contributes to an established experiment station project, a minimum of nine copies (2 for Graduate College, 1 for Agricultural and Biological

Engineering Department (main office), 4 for committee members and 2 for candidate) may be required. Illustrative materials (including drawings, charts, figures, tables, diagrams, photographs, etc.), and thesis quality reproduction will be provided at no cost to the graduate student when obtained through normal University procedures. Students should confer with their advisors regarding current procedures before finalizing their plans. Students are encouraged to consult and follow the guidelines presented in ***“Instructions for Preparation of Theses,”*** which is available from the Graduate College.

10. The student is responsible for preparing the final thesis draft. Computers and software available on the departmental network may be used to generate the final thesis draft. A Departmental Format Approval form must be completed and the thesis format approved by a department representative prior to submission to the Department Head for signature.
11. The advisor is responsible for having the departmental copies of theses bound through university procedures. The advisor also is responsible for distributing copies of theses to sponsors or cooperating members of the faculty. University procedures do not permit binding of students' copies of theses.
12. The student will complete a Graduate College Clearance Form and other final clearance forms in the Agricultural and Biological Engineering Department Office at the time that copies of the thesis are submitted to the Head of the Department for approval.
13. Under special conditions and with advisor approval, a graduate student may take, under the Credit No-Credit option, non-departmental courses in areas in which students in Agricultural and Biological Engineering are not normally proficient. Students must complete a minimum of 12 hours of graded course work for each 4 hours of work taken under the Credit No-Credit option.
14. An *appeal procedure* is available to any student who believes that he/she has received unfair treatment from either the preliminary or final examination committees. The student should present the problem to the Department Head, accompanied by a written statement specifying points of contention. Either the student or the Department Head may request the advice of the Departmental Graduate Committee.

Prepared by the Departmental Graduate Committee, October 1979
Revised: November 1991; January 2004; August 2006
Effective: August 2006

11. Policies and Procedures for Doctor of Philosophy Degree Programs

The following policies and procedures have been established to maintain the standards of excellence associated with Doctor of Philosophy degree programs for students majoring in agricultural engineering and to provide for an orderly culmination of the programs. Departmental special requirements as well as the requirements of the Graduate College are summarized in the following statements pertaining to the Doctor of Philosophy program in agricultural engineering.

1. The *general requirements* for a Doctor of Philosophy Degree may be conveniently divided into three stages.
 - a. **Stage I** is the Master of Science or its equivalent (a minimum of 32 semester hours, of acceptable graduate work at this or another university). For requirements for the Master of Science Degree in Agricultural Engineering at the University of Illinois refer to the statement entitled, "Policy and Procedure Pertaining to Master of Science Degree Programs." When Stage I is completed at another university, its suitability is evaluated at the time when the prospective graduate student is considered for admission.
 - b. **Stage II** involves one or more additional years devoted to course work and research in preparation for the preliminary examination. Additional course work (a minimum of 32 hours beyond the M.S.) must be completed to provide a comprehensive background for the intended research. A detailed dissertation proposal must be prepared before the preliminary examination may be scheduled. The proposal should demonstrate knowledge of the field by the candidate, state a concise objective, include a review of the pertinent literature, and outline in some detail the proposed procedure and form of the anticipated results. Passing the preliminary examination marks the end of Stage II.
 - c. **Stage III** involves mainly research culminating in an approved dissertation and final oral examination. In some cases further formal course work may be taken during Stage III. This stage requires a minimum of 32 hours of research, and a minimum 6 month time period after passing the preliminary exam. It is completed when the final examination is passed and the approved dissertation is deposited with the Graduate College.
2. Significant in-class teaching experience will be required for the Doctor of Philosophy Degree unless the candidate can demonstrate that he/she has previously had such experience. The student will receive instruction in teaching methods, and will participate in significant in-class teaching activities for at least one semester. The teaching activity, with assessments and feedback on teaching performance, will normally occur as an assistant in an Agricultural Engineering or Technical Systems Management course. In cases where the opportunity to participate in an in-class teaching experience does not occur during the first or second semester in the program, the student may satisfy the teaching experience by completion of the College of ACES Teaching College.

3. **A minimum of 32 hours of formal course credit will normally be required including the following coursework, unless previously taken.** No course shall be double counted for more than one requirement. For specific required course, see List of Math, Statistics & Electronics Courses:
(http://abe.illinois.edu/grad_programs/grad_requirements)
 - a. A 500-level formal course in area of specialization (normally not a special problem; no Independent Study is allowed).
 - b. Instrumentation and measurement.
 - c. Statistical design and analysis.
 - d. At least one course in mathematics beyond differential equations.
 - e. One or more courses in other departments pertaining specifically to the area chosen for research.
4. Action to correct any deficiencies that are apparent in the candidate's technical or writing ability should be required by the advisor early in the graduate program before the candidate is allowed to present a dissertation.
5. The dissertation advisor and the subject to be investigated should be chosen *early in the first year of graduate study* so that definite progress can be made during that term in review of literature, planning of the research program and selection of future coursework. Departmental section leaders will acquaint the candidate with opportunities for research and faculty available to serve as dissertation advisors.
6. Responsibility for conduct of the research, analysis of the results, and writing and preparation of the dissertation rests with the candidate. The dissertation advisor will serve only as an examiner, critic, and counselor from the beginning of planning for the investigation to completion of the dissertation.
7. Limited resources both within the department and the university make it imperative that graduate students make satisfactory progress toward a degree. Financial assistance to one-half time assistants will normally be limited to three years. All requirements for the degree are to be completed within seven calendar years (six years for students entering directly into Stage II).
8. The *preliminary examination* is taken at the end of Stage II. It provides information on which to judge the suitability of the student as a candidate for the doctorate and encompasses:
 - a. Technical knowledge and comprehension.
 - b. Professional concepts and awareness.
 - c. The probability of satisfactorily carrying out independent research.
 - d. The proposed dissertation research.

The preliminary examination will be scheduled for approximately a three-hour oral session. In addition, because of the broad subject matter area involved in the student's preparation and to assure that there is adequate time during the examination for a critical review and suggestions regarding the dissertation proposal, it is generally desirable that the candidate have an opportunity to demonstrate achievement in a written mode prior to the scheduled preliminary examination. The decision on the use and format of such interrogation rests with each individual committee member. Committee members should be informed of an upcoming preliminary examination in sufficient time to determine the need for and to prepare a prior written examination. Also committee members should be provided with a copy of the dissertation proposal at least one week prior to the preliminary examination date.

The examining committee will normally consist of from three to five faculty members, at least one of which must be from another department. The committee is appointed by the Graduate College in response to a request from the Department Head. The chair and at least two additional members of the examining committee must be members of the Graduate Faculty and at least two members must be tenured faculty. The committee may include, in addition to faculty from various subject matter areas of the University, individuals from outside the University who have a particular interest and competence in the area of the dissertation research. A suggested procedure for activating the committee includes:

- a. Consultation between student and advisor regarding appropriate committee membership.
- b. Informal contact with those selected by either student or advisor to ascertain willingness to serve.
- c. Proposal of committee membership to Department Head by the advisor on appropriate Graduate College form (at least 3 weeks prior to exam date).
- d. Submission of committee appointment request by Department Head to the Graduate College.
- e. Notification of appointment to chair and committee members by Graduate College.
- f. Scheduling, convening, and reporting (to the Department Head and the Graduate College) of the result of the examination by the chair.

There are several possible outcomes of the preliminary examination. A pass decision must be unanimous. The possible decisions and actions which may follow are:

- a. **Pass.** The candidate is allowed to go on to Stage III. Additional course work may be specified at the discretion of the Committee.
- b. **Fail without an opportunity to retake the examination.** This results in elimination from the program.
- c. **Fail with an opportunity to retake one time, normally, after satisfying some specific conditions.** These conditions may involve such things as taking some

additional course work, additional work on the dissertation proposal, or correction of a language or writing deficiency. This result will normally be used if completion of the specific conditions is likely to take longer than six months.

- d. **Adjournment for a period of not longer than six months.** During this period the candidate will have specific actions to take before the completion of the examination is scheduled.
9. The *final examination* is scheduled after all other aspects of the Doctoral program are completed. **It is oral and partially public.** The primary purpose is to require the student to defend his/her dissertation research. The examination will normally be scheduled for a three-hour period and the student will usually be asked to begin the examination with a thirty to forty five minute oral presentation of the research. Committee members will be provided with a copy of the dissertation at least one week prior to the examination.

The committee for the final examination may be the same as for the preliminary examination or there may be some changes in membership. The procedures for appointing and activating the committee are similar to those discussed earlier for the preliminary examination committee.

10. Minimum deadlines to complete requirements to meet dissertation deposit deadlines as specified in the calendar of the Graduate College are:
 - a. The student and advisor will submit the request to appoint the committee to examine the candidate to the Department Head, on the appropriate Graduate College form, no later than five weeks prior to the dissertation deposit deadline.
 - b. The Department Head will submit the proposal of committee membership to the Graduate College no later than four weeks prior to the dissertation deposit deadline.
 - c. The examination is to be held at least one week prior to the dissertation deposit deadline.
 - d. Copies of the dissertation are to be in the hands of the examining committee at least seven days prior to the examination.
 - e. The chair of the examining committee will convey the recommendations of the group to the Department Head and to the Graduate College in writing at the close of the examination.
11. Illustrative materials (including drawings, charts, figures, tables, diagrams, photographs, etc.), and dissertation quality reproduction will be provided at no cost to the graduate student when obtained through normal University procedures. Students should confer with their advisors regarding current procedures before finalizing their plans. Students are encouraged to consult and follow the guidelines presented in "Instructions for Preparation of Theses," which is available from the Graduate College.

12. The student is responsible for preparing the final dissertation draft. Computers and software available on the departmental network may be used to generate the final dissertation draft. A Departmental Format Approval form must be completed and the dissertation format approved by a department representative prior to submission to the Department Head for signature.
13. **The advisor is responsible for having the departmental copies of dissertations bound through university procedures. The advisor also is responsible for distributing copies of dissertations to sponsors or cooperating members of the faculty. University procedures do not permit binding of students' copies of dissertations.**
14. The student will complete a Graduate College Clearance Form and other final clearance forms in the Agricultural and Biological Engineering Department Office at the time that copies of the dissertation are submitted to the Head of the Department for approval.
15. Under special conditions and with advisor approval, a graduate student may take, under the Credit/No Credit option, non-departmental courses in areas in which students in Agricultural Engineering are not normally proficient. Students must complete a minimum of 12 hours of graded course work for each 4 hours of work taken under the Credit/No Credit option.
16. An *appeal procedure* is available to any student who believes that he/she has received unfair treatment from either the preliminary or final examination committees. The student should present the problem to the Department Head, accompanied by a written statement specifying points of contention. Either the student or the Department Head may request the advice of the Departmental Graduate Committee.

Prepared by Departmental Graduate Committee, October 1979
 Revised: November 1991; June 2004; August 2006
 Effective: August 2006

12. Grades, Credits and Course Loads

Grade Point Needed

The University of Illinois awards letter grades as follows: A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-, F (fail). Credit for a course in which a student has received an F cannot be counted toward the degree. Points in the computation of grade point averages are as follows:

A+	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F
4.00	4.00	3.67	3.33	3.00	2.67	2.33	2.00	1.67	1.33	1.00	0.67	0.00

The numerical equivalents are used to compute grade point averages. For graduate students, only courses taken for credit and graded on the A through F scale are included in the grade point calculation. If a course was repeated, the grade for the course when first taken is the grade that counts; the grade for the repeated course is ignored when computing the GPA; and the repeated credits are ignored.

The Agricultural and Biological Engineering Departmental minimum grade point average is 3.0/4.0, which must be maintained in order to graduate from our graduate degree program. If a student falls below a 3.0/4.0 they will be placed on limited status. If the grade point average is not raised above a 3.0 within two semesters, the student will not be allowed to register for future classes.

Credit No-Credit Option

The credit no-credit option allows a student to explore courses in departments where some course background may be limiting, but without obtaining a penalty of reducing one's GPA. However, a student must earn at least eight hours of graded course work (A-D) for each hour of credit no-credit course work. In any one semester, a student may take no more than four hour on a credit no-credit basis. Hours transferred from another university cannot be used as part of the graded course work.

If a student is admitted on limited status, or if a student falls below the Department of Agricultural and Biological Engineering minimum GPA of 3.0/4.0 and is placed on limited status, the student will not be allowed to register for credit no-credit course work.

To take a course under the credit no-credit option, complete a "Credit No-Credit Option" form, obtain the academic advisor's signature, and submit the form to the Main Office, 338 Agricultural Engineering Sciences Building. To return to the letter grade system, the student must submit a second version of the form by the same deadline.

Transfer of Credit

A student may request transfer of credit for graduate courses taken within the last five years from another accredited institution that were not used to fulfill the requirements for a previous degree. A petition for transfer of credit includes the recommendations of your academic advisor, the Graduate Program Coordinator and the Head of the Department. Ph.D. students may transfer no more than eight hours of credit and are required to earn at least 64 hours of credit in residence. The Graduate College renders the final approval of transfer credit. Transfer credit is not included in a student's UIUC grade point average.

Course Loads

The maximum course load for a full-time graduate student is 20 hours in a regular semester, 10 hours for the summer session. Students usually take no more than 12 hours per semester or six hours in the summer. Students need to enroll for at least 12 hours per fall and winter semesters and six hours for summer session in order to be considered a “full time-student”. Failure to enroll for these amounts can result in loss of fellowship and/or insurance, and may influence the payback agreement of certain student loans.

If the student is on a graduate appointment, the Graduate College limits the amount of course work that he/she can take. Exceptions may be granted. To apply for an exception, submit a petition to the Graduate College Records Office, 901 West Illinois Street, no later than two weeks before the semester in question. The petition includes recommendations of the academic advisor and the Head of Department. A petition submitted after the first day of classes must include an explanation of why it was submitted late. A petition submitted after the first four weeks of classes (two weeks of the summer session) is considered only with incontrovertible evidence that a timely submission was impossible. Lack of awareness of the overload policy or delays in finalizing an assistantship does not excuse the delay.

Overload permission is not granted if excused grades from a previous semester have not been cleared, a previous overload was not completed satisfactorily, or the applicant's grade point average is below the department's minimum. For purposes of course loads and hours of credit, there is no difference between graded courses and those taken under the credit no-credit option.

Time Limits for Completion

*"There will come a time when you believe everything is finished.
That will be the beginning."-- Louis L'Amour*

M.S. candidates must complete all degree requirements, under normal circumstances, within five years after first registering in the Graduate College. Ph.D. candidates must complete all requirements within seven years after first registering in the Graduate College. If the M.S. degree was received elsewhere, then Ph.D. requirements must be completed within six years after registering in the Graduate College. Refer to the *Handbook for Graduate Students and Advisers* for handling of interruptions in progress toward the degree.

Annual Evaluation of Progress

Formal annual review for each graduate student in ABE is required and conducted by the major advisor. Course work progress: Master student should complete all courses in one year; but no more than 1.5 year provided consent of the advisor. PhD should complete all courses in 1.5 year but no more than 2.0 year provided consent of the advisor. Prelim (For PhD only) is strongly recommend to be taken before the end of

fifth semester, or more than one year prior to final exam; Absolutely no later than 6 month prior to the final. An Annual Evaluation Form template can be downloaded at: s:\msoffice.sr1\template\grad annual review form (Prepared by ABE Graduate Committee: Jan 16, 2012. Effective February 1, 2012)

13. The Thesis

*"Nobody ever drowned in sweat."
Author Unknown*

Guidelines for writing the thesis are given in the *Instructions for Preparation of Theses* which can be obtained from the Graduate College. This publication describes in detail the requirements of the Graduate College for preparing, formatting, and printing of your thesis. It is available at: <http://www.grad.illinois.edu/graduate-college-thesis-requirements>.

14. Professional Responsibilities and Opportunities

Graduate students are encouraged to participate in the scientific and professional activities of the American Society of Agricultural and Biological Engineers, other professional societies, and in other programs at the University of Illinois. The Colleges of Engineering and ACES, and the BioEngineering Faculty frequently have seminars that are announced by posters and in the University paper, the *Daily Illini*. The Agricultural and Biological Engineering program provides seminars presented by leading researchers from other institutions as well as its own faculty and graduate students. Participation in these and other scientific events enables graduate students to develop the broad perspective in Agricultural and Biological Engineering that is expected of all students. In addition, students are encouraged to grow in their chosen areas of study through more in-depth involvement in library research, field training, applied programs, and participation in professional meetings.

The faculty welcomes student ideas and encourages both informal and formal intellectual exchanges. Graduate education is a combination of course work, research and experiential learning outside the classroom. Graduate students are expected to assume the responsibility for participating in informal learning experiences at coffee breaks and seminars. Information on these is usually posted in the weekly departmental bulletin, on bulletin boards and with e-mail correspondence.

Publication of Student Research

A major part of graduate education is gaining research experience. Publications are the main avenue of sharing research with others in the field. Such publications not only serve the research community, but also advance professional experience and credentials, and the reputation of the institution at which the research was conducted. Publication experience is an important consideration for potential employers of M.S. and Ph.D. students. Degree candidates are expected to publish the results of their

research. Prior to leaving campus, degree candidates are expected to have written an acceptable draft of one or more manuscripts pertaining to their research. Faculty advisors will help the student become familiar with publication formats and opportunities.

Significant Teaching Experience

A significant teaching experience is regarded as a vital part of every graduate student's education and is highly recommended for every graduate student. The amount of experience obtainable depends on the educational background and previous experiences of the individual.

We believe communication skills, both written and verbal, are an essential element of graduate education. Graduates will likely seek employment in academia, industry, government, consulting practice, or private enterprise. In all cases, the ability to orally communicate effectively will be important to you and more than any other factor will affect your ability to advance in your chosen profession. Oral communication can be greatly enhanced through contact with students through teaching in a classroom or laboratory setting.

Discuss with your advisor and think about what teaching experiences you would like to gain before graduating. In the competitive employment situation that graduates face; most employers in academia *expect* significant teaching experience to be a part of the resume.

Some of the possible ways in which teaching experience can be obtained are listed below.

- Grading homework, quizzes, or papers
- Assisting with development and set-up of labs
- Providing one-on-one assistance to students in labs
- Receiving instruction in teaching methods (eg. ABE 501)
- Giving instruction in lab section(s) and obtaining evaluative feedback¹
- Developing new lab materials and acquiring equipment
- Giving two to four classroom lectures in a semester and obtaining evaluative feedback
- Attending the two-day all-campus orientation for new TA's (given once per semester) and participating in the two hour micro-teaching session²

¹ Evaluative feedback methods may include:

Video taping and critiquing by Office of Instructional Resources
Having ICES evaluations done by students
Obtaining instructor or peer feedback on teaching or lab instruction

² For students whose native language is not English, a SPEAK test score of 50 or above is required by campus and the two day International Teaching Assistants Orientation (held for two days immediately before the Teaching Assistant's Orientation) is required.

- Participating in the College of ACES or College of Engineering Teaching College
- Participating in campus *Preparing Future Professors* seminar two-hour per week for 12 weeks
- Participating in programs such as the campus *Writing Across the Curriculum* for developing skills in grading intensive writing courses
- Other experiences

As a graduate student in the Department of Agricultural and Biological Engineering, you should seek out opportunities to gain teaching experience and you may contact either the Graduate Program Director or your thesis advisor to let them know of your interest. We will make every attempt to make your experience as meaningful as possible.

Academic Integrity

The basic campus policies and definitions regarding Academic Integrity are presented in detail in the *Code on Campus Affairs* and *Handbook of Policies and Regulations Applying to All Students*. Many academic-integrity issues involve the process of conducting and reporting research. Collaboration with faculty and other students is strongly encouraged in some situations but inappropriate in others. Faculty and students commonly work together on research leading to journal articles and other manuscripts. All who made a significant contribution to the research should be included in the list of authors. Individuals are generally listed in order of the contribution to the manuscript. If relative contribution is not clear, the authors may decide to list names alphabetically or on some other criteria. The authorship should ideally be discussed and determined early in the project.

For course assignments, your instructor can indicate whether problems and papers are to be completed alone or in work groups. When preparing papers, it is crucial to state all sources of information and to give explicit references for quoted material. Failure to do so can result in severe academic penalties including dismissal from the University under the procedures spelled out in the *Code of Policies and Regulations*.

The University is committed to learning and research, and hence is committed to truth and accuracy. Integrity and intellectual honesty in scholarship and scientific investigation are, therefore, of paramount importance. The University considers any of the following to be a major breach of professional standards of competence and responsibility:

- a. Fabrication or falsification of data includes intentionally misleading and selective reporting.
- b. Plagiarism, abuse of confidentiality with respect to unpublished material, flagrant violations of accepted standards regarding submission and publication of scholarly works, and other misrepresentations of originality.

- c. Irresponsible failure to comply with research regulations, such as those applying to human subjects, laboratory animals, and standards of safety.

Any member of the University community who becomes aware of an apparent instance of fraud or other academic misconduct relating to research or scholarship has the responsibility to try to resolve the issue, if possible, in consultation with those directly involved. If consultation is inappropriate or unsuccessful, it is incumbent upon the individual to report the suspicious circumstances to the Head of the Department or to the person appointed by the Vice-Chancellor for Research as the research standards officer.

The unit executive officers, deans, other administrators involved, and the entire academic community are charged with protecting the academic careers of persons who have in good faith reported possible fraud or misconduct in scholarship or research. If the conduct of a student is in question, the matter will proceed according to the *Code of Policies and Regulations*.

15. Departmental Offices, Secretarial Services and Equipment

Office Space and Keys

Office space is usually assigned to graduate students holding fellowships or assistantships in the Department of Agricultural and Biological Engineering. Unsupported graduate students may be provided office space depending on space availability. Office space is assigned by the Assistant to the Department Head. The University Library and Grainger Library have limited-access study carrels for which graduate students may apply.

Any keys to offices or laboratories that are issued to graduate students must be signed for and approved by their Section Leader. Any keys lost by the student are charged \$10 per key.

Secretarial Services and Office Supplies

Some secretarial assistance may be provided when appropriate for teaching and for some research activities.

Graduate students may have some limited use of office supplies for research purposes. The Department provides printing supplies for computers used by graduate students. Departmental copying machines may be used for teaching purposes and on a limited basis for thesis research. For out of the department use, copy cards can be

purchased or charged to a university account if your advisor has a funded project for which photocopying is deemed necessary. Students must provide their own supplies and copying for course work. Textbooks and other copyrighted materials are not to be copied.

Laboratories and Equipment

Graduate students should be aware of the following excerpt from The General Rules Concerning University Organization and Procedure, Part III, Section 22:

“No one connected with the University in any capacity shall use for any personal purpose any University property of whatever description and no one shall be permitted to remove from the buildings or grounds any property belonging to the University, even though it may seem to be of no value, unless it be temporarily removed pursuant to some well-established regulation, or with the approval of the appropriate Chancellor or the Vice-President for administration in the instance of general University property.”

The use of departmental equipment in the performance of duty causes certain difficulties in control and security. A policy of free use by students and staff has been maintained. It is believed that the advantages of an open system outweigh the disadvantages. However, common sense, respect for others, and basic courtesy are important factors in making the present system operate satisfactorily. These qualities are contagious and all graduate students and staff members are requested to practice them.

There primary persons in charge of laboratories. You should treat these people with utmost respect.

1. If you use equipment, you are expected to put it back.
2. If you make a mess, you are expected to clean it up.
3. If you break something, leave a note to the supervisor so that the equipment can be repaired or replaced.

Using a lab or equipment in a lab is a privilege. People with many different backgrounds and levels of experience share the same lab facilities and space. Past experience indicates, however, that if the three rules listed above are followed, the labs will run more smoothly and your research efforts will be more productive.

Safety

Many problems concerning the use and care of tools and equipment often arise in connection with student use of equipment. The machine shop is supervised by Mr. Dennis Mohr. If a student needs to work in the Machine Shop, the faculty member in charge of his work shall introduce the student to Mr. Mohr and the three shall discuss the nature of the work, equipment involved, limitations and times when the work can be done. It shall be the responsibility of Mr. Mohr to judge the skill of the student with

respect to their ability to perform a given machine operation. Mr. Mohr maintains certain standards of workmanship in the machine shop, establishes and enforces appropriate safety regulations and is charged with security measures. Suitable eye protection or safety glasses shall be worn in the shop.

As a safety precaution, personnel working in laboratories are instructed not to use power tools, machines or caustic chemicals unless another person is within the range of voice contact. This also means one should not work in labs alone on weekends with power tools.

Telephone and Facsimile Machines

Telephones and facsimile machines are available for use pertaining to business. Personal use should be avoided unless provisions are made to reimburse the University from personal funds.

Travel

Partial support for travel is often provided by the student's advisor for attending major national meetings such as the Annual American Society of Agricultural and Biological Engineers (ASABE) meeting. The amount of support usually depends on whether a paper is being given by the student and the extent of other direct involvement in the conference or meeting attended. An Out-of-State travel form needs to be completed and approved prior to any trip taken out of state for university business.

University and Departmental Forms

At some point each graduate student will probably need to become familiar with filling out each of the following forms. Some are available on the departmental server in MS Word under the menu obtained from files, new. Forms of interest are:

- Departmental Key Request
- Request for Approval of Out-of-State Travel
- Air Travel Order (ATO)
- Travel Voucher
- Invoice Voucher
- Departmental Purchase Order (DPO)
- Stores Service (Campus Stores Voucher)
- Request for Expenditure
- Request Car from Car Pool

16. The Graduate College

*“The cost of education is high,
but the cost of ignorance is even greater”*

Michael Loui, Former Associate Dean Graduate
College, March 2000

The Graduate College at the University of Illinois at Urbana-Champaign is highly committed to the academic progress and well being of our graduate students. They have an in-depth web site that covers nearly every conceivable problem that graduate students may encounter. It also describes many opportunities for research grants, dissertation grants, travel grants and many other University-wide opportunities for the enrichment of the graduate student experience. In addition, they publish a monthly newsletter that provides updates of upcoming opportunities and deadlines for thesis deposit dates, etc. This site is located at: <http://www.grad.uiuc.edu>. We highly recommend that you acquaint yourself with this information.

17. Graduate Student Organizations

There is a campus-wide Graduate Student Advisory Council called GSAC. The Graduate Student Advisory Council (GSAC) is comprised of students from a wide variety of disciplines at the University of Illinois at Urbana-Champaign. GSAC's primary goals are to:

1. Participate in any decision making that affects graduate students.
2. Represent the graduate students of the University of Illinois in a unified manner to the administration, faculty and staff.
3. Improve communication between graduate students and the administration of the University of Illinois at Urbana-Champaign.
4. Develop and maintain a stronger line of interaction among the graduate student body as a whole.

An Agricultural and Biological Engineering Departmental graduate student association is established in 2011. The ABE GSA provides an important outlet for additional communication among graduate students and faculty. Graduate students are asked for their input on many departmental committees, including the Graduate Committee, the Courses and Curricula Committee, the Student Recruitment Committee, and others.

18. Solving Problems

Your academic advisor is a valuable contact if academic problems arise. In the advisor's absence, the student may consult with another faculty member, the Graduate Program Director, the Head of Department, the University of Illinois Counseling Center, a representative of the Graduate College, the Ombudsman for the campus, or an official of the Office of International Student Affairs.

There is a Campus Support Group Program, which is a part of the Counseling Center at the University of Illinois. They offer a wide range of support groups dealing with grief, chronic illness, relationships, mood disorders, diabetes, thesis completion, etc. Their web site is: <http://www.uiuc.edu/usergroups/students.html> or phone 333-3704.

The University of Illinois offers a Counseling Center at Turner Student Services Building, 610 East John Street, 333-3704 or <http://www.couns.uiuc.edu>. They provide counseling or help for every imaginable problem. No problem is so great that help can not be obtained, and no problem that bothers you should be left unshared either with a family member, friend, advisor or professional worker. Other people can provide a different view of a problem than you can and often another person's different perspective lets you know immediate help is needed or maybe that your problem is not unique and others have experienced similar situations.

19. University Governance

The University governance system accepts jurisdiction in those instances in which the interests of the University community appear to be substantially affected but recognizes that not all violations of local, state and federal law requires University action. Disciplinary action may be taken in the following cases:

- a. Academic violations.
- b. Violations of University vehicle or bicycle regulations.
- c. Actions that occur on University premises or property and result in the violation of local, state or federal law, Board of Trustees action, or University rules of conduct.
- d. Actions that violate any of the laws or regulations cited in c above and substantially affect the interests of the University community even though such actions do not occur on University property or premises.
- e. Cases referred to the discipline system following summary suspension by the chancellor.

The University reserves the right to deny admission or re-admission to any person because of previous misconduct that may substantially affect the interests of the University or to admit or re-admit such a person on an appropriate disciplinary status. The admission or re-admission of such a person will not be approved or denied until the case has been heard by the appropriate disciplinary committee.

Complaints that may require disciplinary action are sent to the Office of the Senate Committee on Student Discipline, which refers them to the Dean of the Graduate College. The Dean or a designee acting as disciplinary officer for the Graduate College may take administrative action or may prepare formal charges and send them to the Subcommittee on Student Conduct for Graduate Students. Appeals

of decisions of this subcommittee are made directly to the Senate Committee on Student Discipline.

More detailed information concerning the University governance system is available from the Office of the Senate Committee on Student Discipline and in the *Code on Campus Affairs and Handbook of Policies and Regulations Applying to All Students*.

Dismissal and Reinstatement

If you are dismissed from the graduate program for failing to satisfy degree requirements, you may petition the Head of the Department for conditional reinstatement. Such a petition must include reasons for reinstatement and the recommendation of your academic advisor. In considering a petition for conditional reinstatement, the Department Head's consideration includes, but is not limited to, the following criteria: performance in non-core courses; performance in teaching or research; recommendations of faculty, including your academic advisor; deficiencies existing when beginning the program; and work or personal difficulties that may have interfered with progress toward satisfying requirements. If reinstatement is granted, it is conditional on meeting specific course, grade point average, and timing requirements as determined by the Head. The Head will notify the student in writing of the outcome and/or conditions to be met.

Grievances and Harassment

"It is much easier to be critical than correct," Benjamin Disraeli

If a student believes that he/she has received unfair treatment in any matter involving the Department, the student may file a grievance with the Graduate Student Grievance Committee. Guidance appears in *The Handbook for Graduate Students and Advisors*, available from the Graduate College or at their web site at: <http://www.grad.uiuc.edu/grievpolicies>. In addition, the Department has a departmental grievance policy that will outline initial steps for graduate students to take if necessary.

If you believe that you may have been the victim of harassment of any form by any member of the University community, you should notify your advisor, the Head or Associate Head of the Department, the Ombudsman's Office, or the Office of Women's Programs. *The Code of Policies and Regulations* also outlines procedures to follow for grievances and complaints.

Policy and Procedures on Grievances by Graduate Students for the Department of Agricultural and Biological Engineering

I. INTRODUCTION

All members of the University community are expected to observe high standards of professional conduct and ethical behavior in graduate education and in the supervision of graduate research and teaching, (*Guiding Standards for Faculty Supervision of Graduate Students*, March 31, 1997). In a large and heterogeneous scholarly community, however, problems may arise. Thus, the University articulates its policies and provides effective informal and formal procedures for resolving these problems involving graduate students.³

The purpose of this policy is to protect the interests of graduate students in the Department of Agricultural and Biological Engineering by providing informal and formal means of seeking resolution in case of an inappropriate action of a member of the faculty or administrative staff or an inappropriate application of a departmental policy. Any graduate student in the department may informally pursue or formally file a grievance when he/she believes that a decision or behavior adversely affects his/her status as a graduate student.

This *Policy and Procedures on Grievances by Graduate Students in the Department of Agricultural and Biological Engineering* specifies the policy and describes the procedures to be employed to resolve grievances by graduate students. It was approved by the Graduate College on October 11, 2000. This policy does not apply in cases of academic misconduct. Breaches of academic integrity in research and publication are handled under the campus's *Policy and Procedures on Academic Integrity in Research and Publication*. Similarly, this policy does not apply to cases that arise under the *Code of Policies and Regulations Applying to All Students* ("Code"), such as capricious grading in a course (Section 26) or academic integrity (Section 33).

II. SCOPE AND COVERAGE

Definition of a Grievance

A grievance may arise when a graduate student believes that his/her status as a graduate student, or University appointment based on student status, has been adversely affected by an incorrect or inappropriate decision or behavior. Examples include, but are not limited to the following:

1. Inappropriate application of a departmental or University policy;
2. being unfairly assessed on a preliminary examination;
3. being required to engage in excessive effort on assistantships;

³ The policies and procedures described in this document do not override or supersede any other policies as established in the University statutes and campus policies. For more information, see the Agricultural and Biological Engineering Graduate Program Handbook and the *Handbook for Graduate Students and Advisers*.

4. being improperly terminated from student-based University appointment (teaching or research assistantships, etc.);
5. being improperly terminated from a program;
6. being required to perform personal services unrelated to academic or assistantship duties;
7. being required to meet unreasonable requirements for a graduate degree that extend the normal requirements established by the campus or by the department and are inconsistent with the scholarly standards in the discipline;
8. being the subject of retaliation for exercising his/her rights under this policy; or
9. being the subject of professional misconduct by a student's graduate supervisor or other faculty or staff member.

Practices or actions by a student's supervisor, other faculty member, or other member of the University community that seriously deviate from ethical or responsible professional standards in the supervision of graduate student work may constitute professional misconduct in violation of University policy.

III. INFORMAL PROCEDURES

University policy strongly encourages all students who believe they have a grievance to use all appropriate avenues for informal resolution before initiating a formal grievance. Students in Agricultural and Biological Engineering are encouraged to discuss the issue with the faculty or staff member with whom the problem has arisen. If a satisfactory solution is not forthcoming, the student should discuss the issue with his or her adviser, the director of graduate studies, or the department head, who shall attempt to find a resolution acceptable to both parties. The student may also consult with the Graduate College, the Office of the Dean of Students, the Ombuds Office, the Office of International Student Affairs, or other sources.

IV. FORMAL PROCEDURES

A. Identification of the Grievance Committee

The Grievance Committee shall be comprised of the four departmental faculty members who are on the Graduate Faculty and two graduate students in Agricultural and Biological Engineering. The faculty members shall be those four faculty who are elected to the Department of Agricultural and Biological Engineering Advisory Committee. The two graduate student members will be selected by the graduate students in the department. The committee shall select a chair from among its faculty members. The chair is responsible for assuring that a record of the committee's investigations, deliberations, and recommendations is forwarded to the department head. If an Advisory Committee member is not able to serve or if there appears to be a conflict of interest, the head shall appoint a replacement faculty member to the Grievance Committee. The graduate student grievant may request that there be no graduate students on his or her grievance committee.

B. Procedures

1. A student may file a formal grievance with either the department head or directly with the Graduate College, as the student elects. A formal grievance should be filed promptly and must be filed in writing within 180 calendar days of the decision or behavior resulting in the grievance, regardless of whether the departmental procedure or Graduate College procedure is used. The written grievance should indicate the parties involved, the action or decision being contested, any applicable university, campus or unit policy, an explanation of why the action or decision is inappropriate, and the remedy sought.
2. The head shall define the subject matter and scope of the issues related to the grievance in a written charge to the Grievance Committee. The primary involved parties shall receive a copy of the charge.
3. Any participant to the grievance may challenge any member of the grievance committee if there is a perceived conflict of interest. The challenge should be made in writing to the Head of the department. If the objection is prompt and reasonable, the Head shall replace the person with one who meets the stated criteria. The decision of the Head as to whether the challenge is prompt and reasonable as to the acceptability of the replacement member may be a basis for appeal of the grievance committee's recommendation.
4. The grievance committee's investigation shall include a review of written materials presented and seeking information from the primary parties in writing or in person. During a hearing, each of the primary involved parties may make a brief opening statement, and then respond to questions from the committee. The primary involved parties may not question each other directly, but may pose questions from the committee chair. At the end of the hearing, each primary involved party may make a closing statement.
5. Within 30 calendar days of the filing of the grievance, the chair of the grievance committee shall report its recommendations in writing to the Department Head. The Head may grant an extension of the time limit for good cause. The grievance committee's report shall contain:
 - a) A summary of the grievant's contentions and relief sought;
 - b) the response of the individual or department against whom/which the grievance was filed;
 - c) a general description of the investigative process;
 - d) a citation of relevant policies;
 - e) an explicit finding of facts based on the preponderance of the evidence with respect to each grievance included in the grievance committee's charge;
 - f) a listing of the evidence relevant to each finding;

- g) an indication of whether there was a reasonable basis in fact and honest belief for the allegations in the investigated grievance;
 - h) a recommendation of appropriate redress for the grievant(s); and
 - i) any recommended changes in policies and procedures to minimize the probability of recurrence.
6. Within seven (7) calendar days of receipt of the committee's report, the Head shall determine the disposition of the case and communicate the decision to the primary involved individuals. If the Head determines that the grievance has not been proved nor has no merit, the Head will notify all involved parties and all persons who have been interviewed or otherwise informed that grievance has been dismissed. If the Head concurs with the committee's conclusion that the grievance has been sustained and has merit, the Head will proceed in accordance with the University statutes and relevant University rules and regulations. The Head may, after consultation with appropriate campus officers, prescribe redress for the grievant. In addition, the Head may initiate modifications of department policies or procedures. The Head shall notify the relevant primary involved individuals (grievant, respondent, grievance committee members) of actions taken.
7. Within ten (10) calendar days of receipt of written notification of the Head's determination, appeals may be made to the Graduate College as specified in the Graduate College grievance policy. This appeal can be based only upon demonstrated specific deficiencies in the application of the Department of Agricultural and Biological Engineering's grievance procedure to the student's grievance.
8. After completion of a grievance review and all ensuing related actions, the Head shall return all original documents and materials to the persons who furnished them. The department shall destroy the grievance file on a date five (5) years beyond the grievant's time limit for completion of the degree. A report of the nature of the grievance and the primary involved parties shall be forwarded to the Graduate College.

V. GENERAL PROVISIONS

A. Coverage

This policy and these procedures apply to all graduate students and members of the academic and administrative staffs in the Department of Agricultural and Biological Engineering. This policy also applies to former graduate students, provided they meet the timeliness requirements specified in the procedures above.

B. Oversight Authority and Responsibility

1. The Head has responsibility, under the policies and procedures of the Graduate College, for the management of Department of Agricultural and Biological Engineering graduate programs and related policies and procedures.
2. The Head shall have the primary responsibility for administering campus procedures detailed herein. All information and items furnished will be made available to the grievance committee. During the course of an investigation, the Head will provide information about the status of the proceedings to the primary involved individuals. Subsequent to the grievance committee's reporting, the Head will maintain a file of all documents and evidence, and is responsible for the confidentiality and the security of the file. The Head shall make the complete file available to the Associate Dean of the Graduate College on the appeal of a grievance outcome to the Graduate College.

C. Confidentiality

All persons involved in administering these procedures will make diligent efforts to protect the reputations, privacy and positions of all involved persons. These persons include those who file grievances, persons who are alleged in a grievance to have taken inappropriate actions or activities, and department administrators. All of the procedures and the identity of those involved should be kept confidential to the extent permitted by law. However, confidentiality regarding information other than the identity of the grievant need not be maintained if the grievance is found to be false and in particular if dissemination is necessary to protect the reputation of individuals or units falsely accused. Making public the fact that a grievance has been deemed false or unproved is not considered retaliation against the grievant. Protection of confidentiality does not preclude disclosures necessary to redress actions leading to a grievance.

D. Standards of Evidence

The grievance committee's decision shall be made on the "preponderance of evidence" standard. Any finding against an individual or department on the subject of the grievance must be supported by a preponderance of the evidence.

E. Academic Freedoms and Rights of the Parties

1. It shall be a prime concern of all persons who implement this policy and these procedures to protect the academic freedoms fundamental to the academic enterprise. Among other things, this includes the professional judgments of student performance that are an essential part of the graduate education process. Academic freedom, however, affords no license for the mistreatment of graduate students.

2. The rights of the primary involved individuals shall be specified in the form of a written notice or letter from the Head. The primary involved individuals have the following rights:
 - a. To receive notice of the identity of the members of the grievance committee.
 - b. To receive a written statement of the charge, including the subject matter being considered by the grievance committee. If additional information emerges during the committee's evaluation that substantially changes the subject matter, the parties shall be informed promptly in writing.
 - c. To submit statements in writing and to meet with the committee to present information.
 - d. To consult private legal counsel, or another person who may provide advice at the meeting with the committee. Prior notice of the presence of an advisor must be given and any other primary involved party may request a delay of up to five (5) calendar days to arrange for the presence of an advisor.
 - e. To review and respond to the grievance committee's final report.
3. Any of the parties responsible for the implementation of this policy may consult University Legal Counsel at any time during the informal or formal processing of a grievance.

F. Conflict of Interest

A conflict of interest is a significant professional or personal involvement with the facts or the parties to a dispute. Any participant, who has a conflict of interest in a dispute under this procedure, or a concern about a conflict on the part of another, shall report it to the Head who shall take appropriate action. If the Head has such a conflict, the Head will inform the Associate Dean of the Graduate College who will, in consultation with the Dean of the academic college, decide how to address the situation.

G. Timeliness and Procedural Changes

All procedures prescribed in this document should be conducted expeditiously. The Head for good cause may extend any of the time periods and may make other reasonable alterations of these procedures, provided that the alteration does not impair the ability of a grievant to pursue a grievance or the respondent(s) named in the grievance to defend him/herself. Any alterations of these procedures must be communicated to all pertinent parties.

H. Withdrawal of a Grievance

The grievant may submit a written request to withdraw the grievance at any time. The Head shall decide whether to approve the request. A request to withdraw shall be approved only if both parties to the action agree to terminate the proceedings. If the withdrawal request is approved, the Head shall notify the primary involved parties and the files shall be destroyed. If the withdrawal request is denied, the grievance shall continue to be processed to a conclusion according to the above procedures.

I. Termination of University Employment

The termination of University employment of any of the primary involved individuals in a grievance, by resignation or otherwise, after initiation of procedures under this policy shall not necessarily terminate these proceedings.

J. Malicious Charges

Bringing unfounded charges in bad faith is a violation of this and the Graduate College grievance policy. If the grievance committee determines that the allegation(s) in the grievance or the testimony of any person was unfounded and motivated by bad faith, that finding shall be communicated by the Head to the Dean of the Graduate College and the Dean of the academic college. After consultation with the Provost, the Deans may inform the Head of such a finding. Such finding may be the basis for disciplinary action or other personnel decision in accordance with University rules and regulations.

This Grievance Policy was submitted to Agricultural and Biological Engineering Graduate Committee for approval on March 28, 2000 and to the Agricultural and Biological Engineering Faculty for discussion on April 3, 2000. The policy was approved by the Agricultural and Biological Engineering Graduate Committee on April 3, 2000. The policy was updated on October 3, 2000 based on the Graduate College recommendations letter of April 24, 2000. The revised policy was resubmitted for vote by the Agricultural and Biological Engineering Graduate Committee on October 3, 2000. It was approved by the Graduate Committee on October 6, 2000 and the Dean of the Graduate College on October 11, 2000. Note: The authors acknowledge materials obtained from the Departments of Animal Sciences, Agricultural and Consumer Economics, other departments, Dr. Michael Loui and the Graduate College Web Site, the *Handbook for Graduate Students and Advisers*, *Code of Policies and Regulations*, Programs of Study catalog and numerous University publications and websites.

Appendix A

Research Areas of Interest of Agricultural and Biological Engineering Faculty

The faculty in the Department of Agricultural and Biological Engineering who advise graduate students are listed below. Their current research areas are best seen on the departmental web site: <http://ag-bioeng.uiuc.edu>. Graduate Faculty are listed below.

Professors:

R.A. Aherine
L.E. Bode
S.R. Eckhoff
R.S. Gates
A.C. Hansen

J.G. Harper
P.K. Kalita
K.C. Ting
Y. Zhang

Associate Professors:

R.A.C. Cooke
T.E. Grift
K.D. Rausch
V. Singh

L. Tian
X. Wang

Assistant Professors:

K.D. Bhalerao
G. Danao
T.L. Funk
A. Green

H. Feng (joint FSHN)
L.F. Rodriguez
L. Schideman
A. Thoron

Department Affiliates:

S. Chen (ISGS)
M. Cheryan (FSHN)
S. Morris (FSHN)

J.F. Reid (Adjunct)
S. Schmidt (joint FSHN)
J. Zellis (CEE)

Appendix B

TOEFL Total Scaled Scores Concordance Table*

Paper	Computer	IBT	Paper	Computer	IBT	Paper	Computer	IBT
677	300	120						
640	273	111	607	253	101	573	230	89
637	270	110	603	250	100	570	230	88
633	267	109	600	250	100	567	227	86-87
630	267	109	597	247	98-99	563	223	84-85
627	263	108	593	243	97	560	220	83
623	263	106	590	243	96	557	220	83
620	260	105	587	240	94-95	553	217	81-82
617	260	105	583	237	93	550	213	79-80
613	257	103-104	580	237	92	547	210	77-78
610	253	102	577	233	90-91	543	207	76

*http://www.ets.org/Media/Tests/TOEFL/pdf/TOEFL_iBT_Score_Comparison_Tables.pdf

Appendix C

Usual and Maximum Credit Loads for Graduate Students

Graduate students with various percentages of University appointments are considered to be making adequate progress when within the following credit hour load ranges. Students are encouraged to stay within these limits, although exceptions may be granted.

Percent Appointment	Usual Semester Load	Maximum Semester Load	Maximum Summer 1 Load	Maximum Summer 2 Load
0 – 10	12 – 16	24	6	12
11 – 25	12 – 16	18	6	10
26 – 40	10 – 14	16	4	8
41 – 60	8 – 12	14	4	8
61 – 74	6 – 10	12	4	6
75 – 90	4 – 8	10	3	6
91 – 100	2 – 6	8	3	4

Appendix D

How to Choose a Thesis Advisor

Michael C. Loui
Former Associate Dean of the Graduate College
Professor of Electrical and Computer Engineering

Choosing a thesis advisor is the most important decision of your life – perhaps more important than choosing a spouse – because your choice affects everything you will do in your career. Indeed, choosing an advisor is similar to getting married: it is making a long-term commitment. Unlike marriage, however, a good advising relationship should end successfully within a few years. Also, unlike husband and wife, the advisor and student do not start as equals. At first, the relationship is essentially an apprenticeship. But although you start as an apprentice, ideally, you should end as a colleague.

As you consider which professor might serve as an advisor, you should first formulate your goals in undertaking thesis research. A thesis demonstrates your ability to make an original, significant contribution to the corpus of human knowledge. Through your thesis project, you develop skills useful in any career: critical reading of the scholarly or scientific literature, formulation and solution of a problem, clear written and oral communication of the results. Furthermore, you learn the practices of a particular scholarly community: theoretical frameworks and experimental paradigms, publication processes, and standards of professional behavior. You learn how to present a paper at a seminar or a conference, and how to give and receive criticism.

You should seek a thesis advisor who can help you meet your goals, and whose working style is compatible with yours. Here are some specific steps that you can take to find an advisor.

Take a course with a potential advisor, possible individual study. In an individual study course, you can learn about the professor's working style, with a limited, one semester commitment between you and the professor. The individual study course might involve directed reading, with the goal of producing a survey article that could serve as the basis for a thesis. Or the individual study course might involve a small project in the professor's laboratory.

Ask for copies of grant proposals that describe research projects of possible interest to you. A grant proposal states research problems, explains the importance of the problems in the context of other research, and describes recent progress, including the professor's contributions. Usually, a proposal includes references to journal articles and books that you can look up. You do not need the budget part of the proposal, which contains confidential information about salaries.

Consider working with two advisors. If you are interested in an interdisciplinary project, then you could engage two official advisors, one in each discipline. Even if you choose only one official advisor, you may occasionally seek advice from a second professor, who can provide an alternate perspective. Some departments institutionalize this practice by requiring that the chair of a doctoral committee be different from the thesis advisor. Discuss these arrangements with both professors openly, to minimize possible misunderstandings about each professor's role.

Interview a potential advisor. What are the advisor's standards and expectations for the quality of the thesis, such as the overall length? Will the advisor help formulate the research topic?

How quickly will the advisor review drafts of manuscripts? Will the advisor help you improve writing and speaking skills? Will the advisor encourage publication of your work?

Will the advisor provide equipment and materials? Will the advisor obtain financial support such as funds to travel to conferences or research assistantships? Will the advisor help you find appropriate employment? Where have former students gone?

What will your responsibilities be? Will you write proposals or make presentations to research sponsors?

How frequently will you meet with the advisor? *The most common problems in the humanities and social sciences is insufficiently frequent contact with the advisor.* I meet with each of my own thesis students individually for one hour each week, in addition to a weekly group meeting.

What are the obligations to the project funding source? How frequently are reports required? Are deliverables promised? Could publications be delayed by a patent filing? Are there potential conflicts of interest?

How will decisions on co-authorship of papers be made? In engineering and natural sciences, co-authorship is common, but practices vary by discipline. Sometimes, the advisor's name always goes last. Sometime, the order of names is alphabetical. Sometime, the first author is the person whose contribution was greatest.

Interview former students. Students who have graduated are more likely to answer your questions candidly than current students. Ask a potential advisor for names and e-mail addresses of former students, whom you can contact.

Was a former student's project unnecessarily prolonged? Did anyone not finish? Why not? Many projects suffer unanticipated delays. Occasionally, for various reasons – not always the advisor's fault – students do not finish theses and dissertations.

How were conflicts resolved? When you work closely with someone else, disagreements are inevitable. The key question is whether conflicts were handled respectfully, with satisfactory resolutions.

If you have a major conflict with your advisor, first attempt to find solutions within your department, consulting another trusted professor, other members of your committee, or the department head. Should you be unable to find a solution by working with people in your department, be assured that individuals in the Graduate College are available to help mediate conflicts. Fortunately, major conflicts are rare. It is most likely that you will enjoy a successful, intellectually satisfying thesis project.

MCL
02.05.1997