ORIENTATION FOR NEW POSTGRADUATE STUDENTS IN BIOSYSTEMS ENGINEERING

September 2015
1. STEPS IN OBTAINING A POST-GRADUATE DEGREE

1.1 Graduate students are expected to select their courses in consultation with their advisors or major professors. Before registering, a “Registration worksheet for postgraduate students” listing a student’s courses is to be completed. The form should be signed by the student and advisor and filed in the Department of Biosystems Engineering office. The minimum number of credit hours of course work are given in the calendar under Biosystems Engineering in the Faculty of Graduate Studies section.

1.2 The Faculty of Graduate Studies requires:
   (a) a minimum grade of C+ in all courses in a student's programme,
   (b) a cumulative grade point average of 3.00 (B), and
   (c) students are also required to demonstrate satisfactory academic performance in areas not related to courses (e.g. attendance and participation in seminars, research progress, thesis, and paper writing).
   (d) the student’s advisor (for M.Sc. students) or Committee (for Ph.D. students) must submit annually by June 1 a form describing the student’s progress and stating whether the progress is satisfactory. The student cannot reregister in September without a satisfactory progress report submitted to the Faculty of Graduate Studies.

1.3 Continuation of assistantships provided by the Department of Biosystems Engineering or thesis advisors (and positive letters of recommendation to future employers, etc.) requires that students:
   (a) maintain a minimum cumulative grade point average of 3.5 (B+) in course work, and
   (b) show acceptable progress in their research projects.

   *Staff’s impression of your progress is important when letters of reference are requested.*

1.4 A student planning to continue into a Ph.D. programme must demonstrate superior performance in credit courses; an ability to carry out independent original research; and an ability to communicate adequately in oral and written English.

1.5 Many postgraduate students receive research assistantships which are paid from research grants or contracts held by professors. We expect M.Sc. students to complete their programmes in a maximum of 12 to 18 months and Ph.D students in 24 to 30 months, therefore, we normally expect students to work only on their thesis research. Occasionally, however, the Department or the student’s advisor may request students to carry out work not related to their theses.

1.6 Normally, we expect our graduate students to work on their degree requirements throughout the year including during the summer months. Students are allowed some vacation each year. In consultation with their advisors, students should determine the
length and timing of their vacations several weeks before they wish to start their vacations.

1.7 Thesis topics should be selected as early as possible.

1.8 Students are expected to arrange weekly meetings with their advisor.

*Remember, it is your degree - you are most affected if research is slow.*

1.9 Try to do some literature review each week.

1.10 Clear and check everything with your advisor concerning availability of equipment and funds to conduct your research.

1.11 Equipment/supplies purchases:

1.11.1 Before purchasing anything, first discuss with your advisor.

1.11.2 Once your advisor approves the purchase, email the following information to both Debby Watson & Evelyn Fehr:
   - Supplier (i.e., Fisher, Sigma)
   - Description of item
   - Quantity required
   - Catalog number
   - Price

1.11.3 You will be notified by email when your order has been delivered. Please be prompt to pick up your order from the Department Office.

1.11.4 Returns – any items to be returned, first contact Debby or Evelyn for instructions. DO NOT try to return any items yourself.

1.11.5 The Department does not keep petty cash on hand. Reimbursement for any items purchased with cash or personal credit card must be in compliance with the University’s purchasing policy. Therefore, CHECK with your advisor or Debby before making such purchases; otherwise reimbursement cannot be guaranteed.

1.11.6 If unsure, please ask for help.

1.12 Postgraduate students may use tools and equipment available in the Department after receiving appropriate permission and instruction. It is your thesis and Degree that are jeopardized by incorrect data or broken equipment that cannot be repaired inexpensively or quickly.

1.12.1 Postgraduate students are encouraged and expected to construct most of their research equipment except where precision or complicated work is involved.

1.12.2 Before using a machine, obtain permission and instruction from Mr. Bourns, Mr. Lavallee, Mr. McDonald or whoever is responsible for a particular room, laboratory, or machine. It is up to you to determine the correct person to contact.

1.12.3 Everyone working in the machine shop is required to wear safety glasses and toe caps, which are supplied by the technicians.
1.12.4 For your safety, students are not allowed to work alone when using equipment.  
1.12.5 Instruction manuals with such equipment as computers and gas chromatographs must be read and completely understood before using the equipment. Do not depend only on the instructions of other students.  
1.12.6 Tools must be signed out by Mr. McDonald, Mr. Bourns, or Mr. Lavallee. It is up to you to determine the correct person.  
1.12.7 Be organized and plan ahead. Several weeks notice must be given when the assistance of Mr. McDonald or Mr. Bourns is required in the design, construction, computer programming, repair, etc. of your research equipment. They attempt to fulfill requests in the order that they are received, although other factors may affect their work plans.  
1.12.8 Requirements for teaching undergraduate courses have priority over research needs.  
1.12.9 When you require the assistance of one of the technicians to construct your research equipment, they require a detailed drawing of the equipment.  
1.12.10 At the end of every work day, return tools to their proper location and clean up the area in which you are working.  

1.13 Become well informed of steps to be taken during an accident or emergency including WHMIS (Workplace Hazardous Materials Information System) procedures. In labs where hazardous materials are present, Material Safety Data Sheets (MSDS) have been provided. The sheets provide information on the chemical’s properties and recommended first aid measures. Know the dangers and first aid measures for any material that you are using or that is present in the laboratory. Be prepared to act correctly in any emergency affecting yourself or others in the building. Rehearse in your mind what you have to do in different emergencies.  

1.14 Arrange for the use of vehicles through your advisor and the Biosystems office. You must have a valid Manitoba Driver’s License. Before you will be allowed to use the vehicles, you must leave a photocopy of your Manitoba Driver’s License in the Biosystems Engineering office, read the Vehicle Use Policy and Annual Voluntary Declaration of Employee Driving Qualifications and sign both copies for the office. Vehicles are to be reserved ahead of time. The first driver in the morning should check the oil, water, fuel, etc. When finished with the vehicle be sure that it has at least 1/4 tank of gasoline. Immediately pass on credit card receipts, and be sure to inform the Department office of any possible problems with the vehicle. If you are in an accident contact the police, Autopac insurance, the University Security Service, the Department office, and your advisor. University vehicles must not be used for any private purpose such as moving furniture.  

1.15 Students needing to travel for such things as fieldwork, conferences, workshops, etc, must first get approval from their advisor. All travel must be in compliance with University policy. Please see Debby Watson for instructions prior to making any arrangements, otherwise reimbursement cannot be guaranteed.
2. **Responsibilities of the Graduate Student**

2.1 It is the responsibility of all students to familiarize themselves each year with the information provided in the University of Manitoba Graduate Calendar. If there is any disagreement between this handout and the University Calendar, the Calendar contains the official regulations and takes precedence.

2.2 Neatness and tidiness are important in postgraduate student offices and laboratories. Keep your laboratory benches neat, tidy, and clean. The janitor does not normally dust lab benches. This is your responsibility. *No one is your servant.*

2.3 Announcements, press releases, scientific articles, and interviews based on or connected to your research and study activities at the University of Manitoba must come through your advisor.

2.4 Do not request typing of personal letters or reports forming a part of your course requirements, etc. Give a minimum of one to two weeks notice if you require letters of reference or proof of attendance from the Department when applying for visa extensions, etc.

2.5 Occasional theft takes place on our campus. Please ensure that office and lab doors are closed and locked whenever you leave. If you happen to be working in the Agricultural Engineering Building, please ensure that all exit doors are closed and locked after 5:00 pm and on weekends. Admittance to the Building at these times is limited to staff, postgraduate and undergraduate students (spouses and friends can accompany you *infrequently*) and other authorized people. If at any time you feel uneasy about the presence of a person, contact University Security Service by phone at 555. The University does not reimburse you for the loss of any personal goods.

2.6 Lights should be turned off when leaving offices or labs.

2.7 Report any breakages of equipment or accidents to your advisor or the Department office if your advisor is not available.

2.8 The student is responsible for completing the degree requirements within an acceptable time.

2.9 Study hard and enjoy your university experience.
3. SERVICES AVAILABLE TO GRADUATE STUDENTS

3.1 Library
The majority of pertinent journals are in the Engineering Library (current issues and issues of the last 4 years), Agriculture Reading Room, Science Library (journal issues more than 4 years old), or Elizabeth Dafoe Library. Pertinent publications include Transactions of the ASABE, Applied Engineering in Agriculture, Standards of ASABE, Agricultural Engineering Abstracts, Agricultural Engineering Index, Journal of Agricultural Engineering Research (JAER), Biosystems Engineering which is the continuation of the JAER, Canadian Biosystems Engineering, Agricultural Engineering (Australia), International Journal of Farm Building Research, Agricultural Engineer (a British journal), Landtechnik, Farm Machine Design, Engineering Journal, International Institute of Refrigeration Bulletin, Engineering Education, Journal of Stored Product Research, microfiche copies of all winter and summer meeting papers of ASAE since 1968 and of CSAE since 1976. In recent years, subscriptions to many journals have been discontinued, therefore, journals of recent years may not be available in the library system. You can use inter-library loans for most articles or books, but it takes time. Copies of theses written by former undergraduate and postgraduate students in Agricultural or Biosystems Engineering are available in the Department office. All ASABE or CSBE members and student members have access to online published articles in Transactions of the ASABE, Applied Engineering in Agriculture, and Canadian Biosystems Engineering.

3.2 Recreation
Swimming, skating, gymnasiums, tennis, racquetball, squash, indoor track, wall climbing, etc. are available at the Frank Kennedy Building and the Max Bell Centre.

3.3 Food
Cafeterias are located in University Centre, Pembina Hall, and the Colleges.

3.4 Student Clubs
On campus, students can join the Graduate Students' Association, International Students' Organization, and the Biosystems Engineering Students Club. Students are encouraged to join and take part in technical societies such as the Canadian Society for Bioengineering (CSBE), American Society of Agricultural and Biological Engineers (ASABE), and Canadian Institute of Food Science and Technology (CIFST). Canadian and landed immigrants are encouraged to apply for Engineer-in-training status in the Association of Professional Engineers and Geoscientists of the Province of Manitoba (APEGM).

3.5 Office Space
As of September 2006, office space for graduate students has been assigned by the Dean’s Office of the Faculty of Engineering. Eligible students are guaranteed a space only if they are on campus. Students who are not eligible are accommodated only if space is available. Eligibility for space is determined based on the following criteria:
- M.Sc. students are eligible for space for a period of 27 months from the date of their first registration
- Ph.D. students are eligible for space for a period of 51 months from the date of their first registration
- M.Eng. students are not eligible for space

Space is of two types: office and laboratory. Some graduate students are assigned office space in their advisor’s laboratory; in other cases, students are assigned office space in an office somewhere in the engineering complex (including the Agricultural Engineering Building).

3.6 Telephone
You will have access to a telephone in your advisor’s laboratory. Access to a telephone in your office space cannot be guaranteed.

Where several postgraduate students are on a single line, please do not monopolize the phone. Long distance calls should be made from a pay phone (located in Agriculture, Engineering, etc.). Check the phone book before requesting directory assistance from the operator. Students, with permission and assistance from Department office staff, can make use of the Fax machine in Room E2-376 EITC.

3.7 Computers
Access to a desktop computer is not guaranteed. You should check with your advisor whether a computer is available for you to use in either the laboratory or your assigned office space. Access to a laser printer may be provided in your advisor’s laboratory. Your advisor is responsible for providing toner for the printers and paper for printing. The Department also owns a poster printer, but printing posters involves a fee, therefore, you need to check with your advisor regarding a payment for printing a poster. Please note that inappropriate use of computer facilities can lead to suspension or permanent denial of computer use privileges. Some examples of inappropriate use of computer facilities include: peer-to-peer file sharing services, removal of anti-virus software, downloading of pirated movies & music, and installation of illegal software/services/games on department computers. These activities put a great burden on the time of our technician and may put others at risk.

The email and internet services are provided by the University. To use the University's central Unix system, you need to claim a student userid by a procedure set out by Computer Services.

Classes related to using the Unix and PC operating systems, and available software packages, including Microsoft Office Suite. They are available to students for free or for a low user fee. The University computer services also offers various training courses on using computers and computer software. A listing of the courses and a form for registering in the courses is usually available in August or September each year.
3.8 **Post Office and Pharmacy**
Located on the first floor of the University Centre across the hall from the University Bookstore.

3.9 **University Health Service**
A family practice clinic is located in room 104 University Centre. Their phone number is 8411. Several other services are described in the yellow pages of the university phone book.

3.10 **Police**
Campus security is located in the Welcome Centre at 423 University Crescent. Phone 474-9312.

3.11 **Fire and Emergency**
Phone:
555 from on campus, 911 (from off Campus)
#555 on MTS or Rogers Wireless
204-474-9341 on all other phones

For other emergency services and phone numbers (e.g. Suicide crisis line, 24 hour service: 786 - 8686) see the inside front covers of the University and Winnipeg phone books.

Following a University related accident, complete and submit an Accident Report form that is available from the Departmental Office.

4. **DEPARTMENTAL POLICY ON SERVICES FOR THESES**

4.1 **Typing, Drafting and Photography**
The cost of typing preliminary and final drafts of thesis manuscripts and the costs of photographs and drafting are the responsibility of the student. Whenever the manuscript and figures will be used in their entirety in an unabridged form as an internal progress report, a portion of the cost, usually one-half, may be charged to a grant or budget, funds permitting.

4.2 **Reproduction**
The costs of reproducing the manuscript and figures for preliminary and final drafts of the thesis are the responsibility of the student. The student is responsible for the cost of three unbound copies of the final thesis (two submitted to the Faculty of Graduate Studies and one for the Department library with binding costs covered by the Department). Your advisor will likely wish to have a copy of your thesis; the advisor is responsible for photocopying and binding costs for this copy. If you wish to have a bound copy for yourself, you are responsible for photocopying and binding costs.
5. **DEPARTMENTAL POLICY ON M.SC. THESIS EXAMINATIONS**

5.1 **Purpose of the Thesis**
For the M.Sc. degree in Biosystems Engineering, the student's thesis should show that the student has mastery of the field, is fully conversant with the relevant literature, and has conducted original research.

5.2 **Advice in Research**
Students should avail themselves of all opportunities for discussion and advice in connection with their research. To obtain suggestions and constructive criticism students are encouraged to present seminars on their research prior to submission of their thesis.

5.3 **Purpose of the Oral Thesis Examination**
The purpose of the oral thesis examination is to examine the candidate's knowledge of the thesis subject and of matters relating thereto.

5.4 **Composition of the Thesis Examination Committee**
Thesis Examination Committees are composed of the Advisor and at least two additional faculty members: one from the Department (usually) and one from outside the Department of Biosystems Engineering. The Committee is selected by the Advisor. Other members of the academic staff of the Department can be present and ask questions but do not vote on the acceptance or rejection of the thesis.

5.5 **Format of the Oral Thesis Examination**
The format of the oral examination may vary, but usually is as follows: A professor from the department, who is not a member of the examination committee, is appointed Chair by the Department Head. The Chair of the Thesis Examination introduces the student, describes the examination procedure, and asks the student to present an outline of the research project and results. The time allocated for the student's presentation shall normally be between 20 and 30 min.

Following the oral presentation, the Chair of the Thesis Examination asks for questions from members of the Committee, usually starting with the member external to the Department of Biosystems Engineering. The Committee members direct their questions to the student according to the procedure outlined by the Chair.

A common procedure in Biosystems Engineering is for committee members to begin by asking general questions related to the oral presentation. Normally this involves recognition by the Chair of each Committee member according to a sequence determined by the Chair. At the end of the questioning by the Committee, the Chair permits questions from other members of the academic staff who are not members of the Committee and from students and others in the audience. Following this period of general questioning most of the audience usually leaves while the committee then questions the candidate on the details of the thesis. The question period is normally 30 to 90 min.
At the end of the examination, the Chair of the Thesis Examination asks the candidate and all academic staff and guests who are not members of the Committee to withdraw. The Thesis Examination Committee then reaches a decision as described in the General Calendar. (The Committee may postpone reaching a decision pending further work by the candidate). After the Committee has met, the candidate is invited back into the examination room to hear the decision. Normally, the Committee requires the candidate to make changes in the thesis before it is accepted.

6. **PHD Graduate Student Procedures**

6.1 The Graduate Studies Committee for the Department of Biosystems Engineering reviews applications and makes recommendations on admissions to the Faculty of Graduate Studies.

6.2 As soon as possible after the student's arrival, the student's advisor will select the members for the student's Advisory Committee. At least one member of the committee must be from an ancillary department. The "Appointment of the PhD Advisory Committee" form is completed and submitted to Graduate Studies.

6.3 The student's Advisory Committee meets with the student to:

6.3.1 Outline University and Department procedures.
6.3.2 Outline expectations such as: course work, candidacy exam, research etc.
6.3.3 Discuss the general research area in which the student will be working
6.3.4 Discuss expertise of members on the committee as sources of information and help for the student.
6.3.5 Discuss other sources of information in the University and outside that might be of assistance to the student.
6.3.6 Schedule next meeting.
6.3.7 Complete the Faculty of Graduate Studies Programme of Study for the Ph.D. degree form and submit to the Head of the Department for approval and signature. The Head will forward to Graduate Studies.

6.4 The student's Advisory Committee must meet with the student in April or May to review grades, discuss research progress, and to complete an annual progress form and submit it to the Faculty of Graduate Studies before June 1 each year. Frequently the committee and student meet at least one more time each year to consider the student's progress.

6.5 **Candidacy Examination**

By the first April meeting (about 8 months into the programme if a student is admitted in September) a decision as to the timing and format of the candidacy exam should have been established. An outline of the Candidacy Examination procedures should be given to the student.
6.6 Teaching and Learning Requirement For Ph.D. Students

Students in the Ph.D. programme in the Department of Biosystems Engineering are normally expected to complete a teaching and learning in postsecondary education requirement. Students are encouraged complete the entire Certification in Higher Education Teaching (CHET) program, however, the requirement can be satisfied by the completion of 40 hours of workshops or coursework related to teaching. Teaching workshops are offered each year by the University of Manitoba. The Advisory Committee for the student must approve the process which will be followed by the student to meet the Teaching and Learning Requirement.

6.7 Final Examination for the Ph.D. Degree

The final examination of the candidate's thesis will be carried out according to Graduate Studies Procedures.