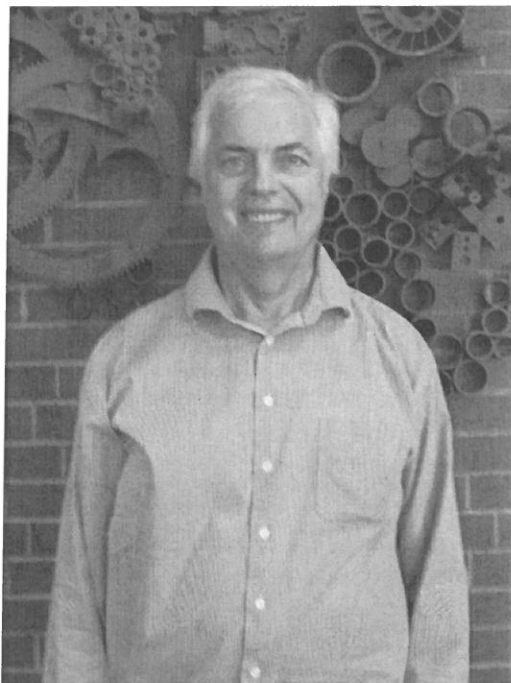


**Department of Chemical Engineering
Graduate Student Handbook
For Research Students**

TABLE OF CONTENTS

Welcome	3
Getting Started (What to do when you first arrive)	4
Courses and Registration	7
General Notes for Graduate Students (Mail, supplies, etc.)	10
Research Computer Usage	11
Admission and Degree Requirements	12
Chemical Engineering Ph.D. Qualifying Exam	13
Financial Support	16
Teaching Assignments	17
Progress Reports	17
Teaching and Writing Centre	18
Finishing up (Oral Examinations and Acceptance of Thesis)	19
Laboratory Safety	21
Attachments	25
Map of Campus	
Course Registration Approval Form	
Graduate Student Course Change Form	
Annual Progress Report	
Checklist for Students Submitting Final Copies (Thesis)	
Sample Thesis Memo	
PhD Research Proposal for Qualifying Exam	
PhD Completion Timeline	



Preface

Welcome to Graduate Studies in Chemical Engineering at the University of New Brunswick.

This document, prepared by the Graduate Academic Unit (GAU) of the Department of Chemical Engineering, contains a variety of information that will assist you in pursuing your studies. Information in this document is meant to provide assistance by outlining some University policies and procedures that you will need as graduate students. The document does not supersede nor take precedence over any academic or other regulation of the School of Graduate Studies or the University of New Brunswick.

Students are specifically directed to consult the webpage of the UNB School of Graduate Studies for University Regulations. These are available as "Calendar and Regulations", located at:

<http://www.unb.ca/gradstudies/>

If you have any questions, please do not hesitate to contact me or the Secretary of Graduate Studies in the Chemical Engineering Office.

Dr. Mladen Eic
Director of Graduate Studies
Department of Chemical Engineering

I've Arrived At UNB - What Should I do First??

Welcome to UNB!! When you first arrive you will no doubt be tired and anxious to get accommodations. The first place you should come to when you arrive on campus is the Chemical Engineering office which is located on the bottom right of campus when you are looking South. The office is in room D39 in Head Hall (Engineering Building). Below are the steps on how to activate your UNB E-Services, which includes your email account:

IMPORTANT:

Please ensure you activate your e-services on a lab machine. All new laptops must be registered on the UNB network or you will not have access to the secure wireless network. This can be done after setting up your e-services.

1. Before starting, please have in front of you:
 - Your **student number** (example: 3123456)
 - Your **login id** (example: m1unb)

1. Open a web browser and type in this url: eservices.unb.ca
2. Click "Activate Your IT Services"
3. Follow the instructions and fill in the required information as requested.

Your account is now active and you can now access registration and things such as your course timetable, transcript and payroll notices.

If you have trouble or the system doesn't want to accept your information, here's what you can do:

- Go to <http://helpdesk.unb.ca/> where you will find "Live Help"
- Call UNB's HelpDesk at 1-506-453-5199,
- Send an email to helpdesk@unb.ca explaining your problem and they will email a response to you



My UNB **e**-Services

2. Registration

To register for your courses you can access registration through your eservices by:

- Login to "My UNB e-Service."
- Click the "Academic" tab.
- Click "Course Registration."
- Check the Graduate Course Timetable Fredericton to check for the course number and synonym. The synonym changes for each term but the course number always stays the same.
- Click "Register for Classes."

The information you need for this screen is found in the Timetable. Table 1 is to be filled in with your course selection. An explanation of the column headings follows.

	Synonym	Subject	Course #	Section #	Term	Take For
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

Submit

Synonym — 6-digit number identifying the course. This number can be found in the online timetable or on the ChE website.

Subject — GGE, CE, EE, etc., which indicates the department of faculty offering the course.

Course number — e.g., CHE 6997

Section number — e.g., FR01A

Term — e.g., 2011/FA or 2012/WI

Take for — Credit

When you have listed your courses (for both fall and/or winter terms) scroll down and click "Submit". Review the resulting screen carefully to ensure that you've been registered in the appropriate course. If registration for a particular course fails, it will appear with a status of "Failed" along with the reason.

3. Student U Card (ID)

Go to the U Card Office which is located at the SUB (Open 9:00 am - 4:00 pm) to get your student ID card (you will need your student ID when you go to the bank). You will also need this card when you are at Step 5.

4. Set up a Bank Account.

Most banks will require that you have an appointment to set up an account. Many students will use the Bank of Montreal which is located on campus, however, you can choose any banking institution in Fredericton (Royal Bank of Canada, Credit Union, Scotia Bank, etc.). When you go to your appointment have the bank help you complete the Cheque Distribution Form which would have been given to you by the office (or get the complete account number that would give the University enough information for Direct Deposit).

5. See Tracie Cameron, Financial Services

Tracie Cameron sets up your payroll, tuition payment, tax information and arranges for your health coverage which is mandatory for all students. UNB allows students to pay their tuition in two payments (September & January) or if you are receiving an assistantship you can arrange to have your tuition taken out in installments from your pay (tuition deduction form). Please note that you must be registered for courses for each term in order to have payments processed. If you are not registered your payments will be held until you are.

6. Meet the Director of Graduate Studies.

Our director (often referred to as DOGs) is currently Dr. Mladen Eic. He is located in Head Hall in D32B. You may speak to him regarding any graduate advising or concerns you may have. Contacting Dr. Eic via email to make an appointment is probably the best way of reaching him (meic@unb.ca).

Now that you've completed the above six items you can settle in to your desk, meet with your research group and supervisor and decide on any courses you may like to register in.

Courses and Registration

Registering for Classes

Before registering for courses, you need to consult with your supervisor on the courses you should take each term (whether it be for credit, or extra to degree or audit). The Department requires proof of this exercise and there is a form (see appendix) each term that is required to be filled out by yourself and your supervisor. MEng students may submit this form directly to the Director of Graduate Studies.

Taking Courses for Credit

Chemical Engineering Courses that begin at the 6000 level are considered graduate level courses ie. ChE6511. These courses count for the full amount of credit hours assigned to the course (usually 3 ch or 4 ch). At times a supervisor may require their student to take a course at the 5000 or 4000 level; this course would be considered to be an undergraduate course and would only count as ½ credit value. It is important to note that courses taken outside of ChE ie., Civil may consider their 5000 level courses to be undergraduate level courses.

Taking Extra Courses

At times students may want to take extra courses in addition to the courses required for their MSc or PhD requirements.

Usually the two main reasons for this is:

- A supervisor may require the student to improve their knowledge in a certain course area, or
- A student may want to take undergraduate courses to fulfill the requirements for PEng status (Professional Engineer).

When taking extra courses it is important to remember that if they are not taken as “extra” to their degree the grade obtained will affect their GPA. It is also possible that if the “extra” courses are not required by their supervisor UNB may charge additional fees.

Students will have to complete a Course Change Form (see appendix) for any courses they wish as an extra to their graduate program.

Auditing a Course

To audit a course, a student must receive permission from the instructor, the student’s supervisor, and the DoGS of the student’s GAU. Students will have to complete a Course Change Form for any course(s) they wish to audit. To audit a course, both the course instructor and the DoGS must approve and sign the course change form. The course instructor is the final arbiter on whether a student may audit a course. It is up to the student to discuss these regulations with the instructor before registration.

The degree of participation by a student auditing a course is limited and must be agreed to in advance by the student and the instructor. A student may not convert an Audit to Credit or Credit to Audit beyond the normal date for adding or changing course registrations. If, at the end of the course, the student has fulfilled all the requirements set forth by the instructor and agreed to by the student, the instructor will inform the registrar and the course will be retained as an AUDIT course on the transcript. If the student does NOT fulfill the requirements, the course will be deleted from the transcript. A course that has been taken on an audit basis may not be subsequently taken on a normal credit with grade basis.

Courses Offered

The GAU offers the courses that are listed below at least once every two years or as demand dictates. The 6000 courses are normally for graduate students only; 5000 level courses can be taken by both undergraduate and graduate students for full credit. The courses are grouped in general subject areas and graduate students are normally expected to make their selection from at least two areas.

CHE 6234 Process Design and Simulation	3 ch
CHE 6235 Oil and Gas Processing	3 ch
CHE 6244 Enhanced Oil Recovery	3 ch
CHE 6264 Oil Sands	3 ch
CHE 6313 Energy and the Environment	3 ch
CHE 6314 Air Pollution Control	3 ch
CHE 6402 Preliminary Project Report and Presentation (MEng only)	6 ch
CHE 6414 Chemical Process Industries	3 ch
CHE 6416 Bioseparations Science & Engineering	3 ch
CHE 6417 Polymer Reaction Engineering & Poly Proc.	3 ch
CHE 6418 Chemical Reaction Eng. II and Catalysis	3 ch
CHE 6423 Practice School	2 ch
CHE 6434 Transport Phenomena	4 ch
CHE 6501 Special Topics in Chemical Engineering	1 ch
CHE 6502 Special Topics in Chemical Engineering	2 ch
CHE 6503 Nanotechnology	3 ch
CHE 6511 Introduction to Research Methods	3 ch
CHE 6515 Advanced Surface Characterization	3 ch
CHE 6522 Nanoparticle Engineering	3 ch
CHE 6714 Electrochemical Engineering	3 ch
CHE 6800 Seminar	1 ch
CHE 6824 Corrosion Processes	3 ch
CHE 6834 Nuclear Engineering	3 ch

CHE 6913 Pulp Production	3 ch
CHE 6923 Papermaking	3 ch
CHE 6933 Biorefining: Principles, Procedures and Prod.	3 ch
CHE 6997 MScE Thesis	cr
CHE 6998 PhD Thesis	cr

ChE 6800 Seminar Course

All research graduate students (MSc & PhD) must complete ChE 6800. This is a presentation course where credit is assigned instead of a grade. Students register for this course each term, same as the thesis course. Each student is required to give a presentation on their research work during their program. The presentation schedule will be made by the Director of Graduate Studies. Students should email their title and abstract to the DOGs at the start of term in which they wish to present.

All research graduate students (MSc & PhD) are required to attend the presentations each term. Failure to attend at least 50% of the presentations will result in a penalty where you will be required to present a seminar the following term or risk a failing grade in this course. Penalty presentations will be in addition to the required CHE6800 presentation.

Evaluation sheets will be filled out by the audience (graduate students and Faculty).

Credit for this course is given at completion of your degree and is ongoing up until then.

General Notes

ChE Office D39 Head Hall

Phone: (506) 453-4520

Fax: (506) 453-3591

Office Hours: Fall/Winter 8:15 – 4:30 pm closed from 12:00-1:00

Mail

All Graduate students have a mailbox located in D32 – please check it daily for phone messages, notices, mail, etc. Please note that personal mail should be directed to your home address not the ChE Department.

Fax/Phone

Some labs have a phone with local calling ability; Grad students may use the phone located in the conference room in the ChE office for calls including long distance calls (no personal phone calls please unless absolutely necessary). Please be courteous and do not come to the office 5 minutes before closing to use the phone. There is a \$1 charge for long distance personal calls or faxes, which should be paid at the time of the call.

Copying

Students may use the photocopier located in the office or E230 to copy or print material for their research, please see Sylvia for the code to use which is associated with your Student Number. During peak class times Faculty members may interrupt your copying if they are in a rush to get to class.

Supplies

The Department will supply you with lab notebooks and paper – please see Sylvia in D39. All other supplies (binders, pens etc.) must be supplied by you or your supervisor.

Stores

The Department has a store manager, his name is Carl Murdock and he is located next to the B24 lab. At some point your supervisor will probably request that you get Carl to order you some sort of chemical, gas or equipment

- He will have a form that you must complete and have your supervisor sign
- He will then arrange for the ordering. Students do not usually buy research related items with their own money.

Machine Shop

The Department also has two machinists on staff. If you require them to make something for your research project, they require you to fill out a form indicating the work required and that you have your supervisor's permission. Adon Briggs is responsible for the handling of shop requisitions.

Keys

When you arrive at the Department you will be given a pink form (ChE Key Application). This must be completed and your supervisor will mark down what keys you will need. A deposit of \$5 is required before you receive any keys. The deposit is paid to the ChE office, you will then be given a slip to give to Carl Murdock to receive your keys. When you leave UNB (and return your keys) you will be given back your deposit.

If you will be working at the Pulp & Paper Centre please see Marilyn as they have a keypad system and you will need a code.

Health Insurance - leaving the province

Students should note that the health insurance they are enrolled in through UNB is for treatment in New Brunswick only. Should you travel outside of New Brunswick or go to another province for study purposes for any length of time, you must make sure that you apply for additional insurance. Please see Linda Maher in Financial Services for details.

Research Computer Usage

Graduate students often have the use of a UNB owned computer for research purposes during their stay here at UNB. These machines are for research only and are not for personal use. If you have a problem with the machine you are using you may contact Sylvia Demerson, the Level 1 for Chemical Engineering at 453-4520 and she will come and take a look at the machine. If it is discovered that there has been improper use of the computer i.e. partitioning the hard drive, downloading programs that interfere with other programs that may be installed on the current computer, uninstalling programs and/or adding unauthorized programs, installing programs which there is not a valid license for, etc. you will be dealt with and appropriate action will be taken. If there is a repeat offense you may lose your computer privileges permanently. If you are uncertain as to whether you should or should not do something on your computer please contact Sylvia.

Admission and Degree Requirements

ADMISSION REQUIREMENTS

Candidates should normally hold a chemical engineering bachelor's degree from a recognized university with an average of B or better (second division standing). Candidates with a Bachelor's degree in science, applied science or other engineering disciplines are also eligible, provided that they have the requisite academic standing. Candidates with non-chemical Engineering background will be conditionally accepted to our graduate program with the conditions being: the candidate needs to take three courses that be chosen from Fluid Mechanics, Heat Transfer, Mass Transfer Operations, Staged Processes, Reaction Engineering, Process Control, which must be completed during the first year of admission. The three courses (except Fluid Mechanics) with grade B or better might be counted as half value towards the graduate degree.

By taking appropriate courses to complement their background, candidates may satisfy the requirements for professional engineering registration. It is the responsibility of the student to apply to the Professional Engineering organization and establish which courses are needed to satisfy the requirements.

DEGREE REQUIREMENTS

MScE

The MScE is a research oriented master's degree which normally requires 18 months to two years for completion from the BSc level. The degree requires successful completion of a research thesis and an approved course program of **16 ch.** The course program must include the Seminar course (CHE6800), and Introduction to Research Methods course (CHE6511).

PhD

The PhD is a research degree for which the thesis is the major requirement. Students are required to successfully complete the research proposal course (CHE 6511 Introduction to Research Methods), the Seminar course (CHE 6800), and two graduate level courses for a minimum course requirement of **10 credit hours.** PhD students are also required to pass a comprehensive examination covering the major areas of chemical engineering within the first year of study. Candidates who have completed their Master's degree at UNB will not be required to complete CHE 6511 but will be required to present a research proposal. Normally, candidates for the PhD should hold a Master's degree in Chemical Engineering or in an appropriate related discipline.

PhDs entering the program will be required to give an oral research proposal within the 12 month period of the student's arrival. This proposal will be given to a committee of three reviewers (two reviewers chosen by the supervisor, these reviewers may be internal or external Faculty members, as well as the supervisor).

A student who holds a recognized bachelor's degree is generally admitted, initially, to the MScE program. Such a student may transfer directly to the PhD program (without writing the MScE thesis) after successful completion of the MScE course program, the comprehensive examination, and presenting and defending a detailed research proposal for the thesis project.

For the comprehensive examination candidates are required to choose three areas from the following list: heat transfer, mass transfer, reaction engineering, thermodynamics, process dynamics/control, unit operations. Written examinations are generally set in two sessions (morning and afternoon) on the same day. Candidates may also be asked to defend their papers orally.

In addition to the university oral, each MScE or PhD candidate is required to pass a departmental oral examination. Candidates are examined primarily on areas related to their research but must be prepared also to answer questions of a general nature.

Chemical Engineering Ph.D. Qualifying Exams

The Ph.D. qualifying exam ensures that each Ph.D. candidate has a level of knowledge equal to a B.Sc. of Chemical Engineering.

The Ph.D. qualifying exam is a full day exam which is normally offered in April of each year. The format and scheduling of the exam is established by the Department of Chemical Engineering. Ph.D. students must take the Ph.D. qualifying exam within twelve months of their arrival at UNB. Approximately four weeks before an upcoming Ph.D. qualifying exam the graduate secretary will send a notice via e-mail to all Ch.E. graduate students of the exam. Candidates must then submit a letter to the Director of Graduate Studies of their intent to write the exam indicating the three areas in which they will be tested. In addition to the Qualifying Exam students will also be required to complete a Research Proposal Examination.

For the comprehensive examination, candidates are required to consult with their supervisor and choose two topics from the following list:

- Heat Transfer
- Mass Transfer
- Reaction Engineering
- Thermodynamics
- Process Dynamics/Control
- Unit Operations

(The third requirement is the completion of the Research Proposal Examination, details follow in the next section.)

Copies of the past Ph.D. qualifying exams as well as a suggested reading list are available on CD from the Chemical Engineering Department Office.

To successfully complete the comprehensive exam each candidate must attain a grade of "B" or higher in each area of testing.

Should a candidate fail one of the sections a review committee will be established by the Director of Graduate Studies. The Committee will decide which of the following actions is to be taken:

- a) Rewrite the exam, or
- b) Conduct an oral exam.

If a student fails again when rewriting the exam or taking the oral exam, he or she will be asked to withdraw from the program, or be allowed to transfer to the M.Sc. program, providing a supervisor is available.

If a candidate fails more than one section of the exam, he or she has failed the qualifying exam. A review committee will be established by the Director of Graduate Studies which will recommend one of the following actions:

- a) Allow the student to transfer to the M.Sc. program, providing a supervisor is available
- b) Require the student to withdraw from the Graduate Program.

The candidate will be informed in writing by the Director of Graduate studies of the results of the qualifying exam.

1. If a candidate fails one of the sections of the qualifying exam, a review committee will be established by the Director of Graduate Studies (DoGS). The committee will consist of three faculty members including the examiner of the course that the candidate has failed, and the Director of Graduate Studies. The supervisor or supervisors can attend the review meeting and ask questions in the same way as the other committee members; however, they will be excused from the decision making process and vote.
2. If a candidate fails more than one of the sections of the qualifying exam, a review committee will be established by the DoGS to recommend that:
 - i) The candidate be transferred to the M.Sc. program, providing a supervisor is available; or
 - ii) The candidate is required to withdraw from the Graduate Program.

In the case of a large number of candidates failing one section, it is highly recommended that the examiner of that section discuss the matter with the Department Chair and DOGs for action to be taken before releasing the marks to the candidates. It is the Chair's discretion whether a faculty meeting should be convened to discuss the case.

General Guidelines for the Research Proposal Examination

The research proposal is more comprehensive than the one required by CHE 6511, in particular, the sections of literature review and the proposed research program. Detailed instructions are provided in the template shown in the Appendices. The obtained experimental results, if there are any, may be included in this proposal.

For new PhD students, the 4 weeks following the written examination, candidates will be required to submit their PhD Research Proposal to the Director of Graduate Studies (Mladen Eic). The proposal must follow the department guidelines which can be found in the Appendices (similar to proposal prepared in ChE6511).

A formal proposal with the approval of supervisor(s) is required to submit to a committee, made of the thesis supervisor(s), together with 2 additional faculty members.

An oral examination will be scheduled, which consists of 20- 25 minutes presentation, followed by a comprehensive oral examination by the committee on the presented proposal, as well as the associated chemical engineering fundamentals.

FINANCIAL SUPPORT

MScE and PhD Students

The Department provides financial support for MScE and PhD students in the form of graduate academic and teaching assistantships. A valid Study Permit is required for all funding by students that are not Canadian or have a Permanent Residency in Canada. The permit must be kept current or funding may be interrupted until a valid permit is obtained. Please keep in mind that applying for a new permit may take up to 3 months.

a) **Graduate Academic Assistantship.** This is paid for pursuing research work under the guidance of a faculty member during the academic year and the summer months. Graduate students who have graduate academic assistantships for a full twelve-month period may take vacation not exceeding three weeks during this period. Students should consult with their supervisor(s) for scheduling their vacations.

b) **Teaching Assistantship.** This is paid for assisting a faculty member with demonstrating laboratories, marking papers, holding tutorial sessions, etc. Teaching assistantship workloads are measured in units of 100 hours, i.e. one unit consists of 4 hours of work per week for two terms. Due to differences in the requirements of assigned courses, the workloads may be higher in some terms and lower in others.

The stipend for a teaching assistantship is normally issued each term. The stipend for a graduate academic assistantship is initially offered for one year and renewed, subject to satisfactory performance, until the completion of the degree program within the time limits defined below.

<u>Program</u>	<u>Normal Years</u>
MScE student with a Bachelor's degree in Engineering	2
MScE student with a Bachelor's degree in other disciplines	2.5
PhD student with a Master's degree in Engineering	3
PhD student with a Master's degree in other disciplines	3.5

Students who receive a Graduate Academic Assistantship are expected to spend a minimum of 36.25 hours per week working towards their degree. Students are granted the same holidays as UNB staff and normally are given 2-3 weeks of holiday each year (10 - 15 working days) or 1.25 days for each month they are in attendance at UNB. All holiday schedules (except statutory holidays) must be approved by your supervisor. Students who require extra holidays will have their research assistantship reduced to reflect the time away from UNB.

Teaching Assignments

Teaching assignments are usually determined 2-3 weeks before new term and are emailed to the Graduate Student List. Students may accept up to 130 hours per term. Teaching Assignments are on a competition basis as there are not always enough positions to go around, so unfortunately not everyone that applies will necessarily receive a Teaching Assignment. While we make every effort to place a student in their course of choice we cannot always accommodate such requests. Please do not approach a Professor to obtain their permission to TA a particular course.

Please note that guidelines around the Collective Agreement with the Union of Graduate Student Workers are followed. Students in the PhD program are given first priority for a 4 year period (from the beginning of when they began the program). MSc students are given first priority for a 2 year period.

Accepting a Teaching Assignment means a firm commitment to the department that you will be available throughout that term and will not be away on conference or have other commitments that will make it difficult for you to keep your Teaching Assignment responsibilities. Please indicate in the space provided if you think you may have a conflict.

Social Insurance Number (SIN) – Human Resources requires that you have a valid Social Insurance Number for the duration of your Teaching Assignment. Please ensure that the Graduate Secretary always has a copy of your current SIN for your file. If you do not have a SIN you will need your passport and study permit to take with you to Human Resources Canada downtown to apply for your Social Insurance Number. Your pay will not be processed by the University until you have a valid SIN on file.

Progress Reports

Every June 1 an annual progress report form must be completed by the research student and their supervisor. This information is kept on file at the Graduate School.

A sample form can be found in the appendix.



UNB Writing Centre

UNB's Writing Centre, located on the top floor of Keirstead Hall in rooms 318-319, helps students improve their academic skills through individual tutoring and small group workshops.

Individual Tutoring: The Writing and Study Skills Program is open to all full and part-time UNB students and provides individual tutoring in writing and other academic skills, including note taking, examination preparation, and time management. Call **453-4646** to make an appointment.

Engineering Library Drop-in Hours: We will be offering a drop-in service in the Engineering Library: Tuesdays and Thursdays from 11:00 to 3:00.

Saturday Workshops: During both terms, the program conducts a number of weekend workshops. For topics and dates consult our web site or the College of Extended Learning calendar; the Fall 2006 schedule is on the reverse of this flyer.

Monday Night Writing Workshops: From September to April, the Writing Centre hosts weekly one-hour workshops concentrating on key writing topics: punctuation, sentence structure, paragraphing, diction, documentation systems, and more. Check our on-line schedule for details and come join us on Mondays at 6:30!

Special Services: Tutoring is also available for distance education students; contact us for more information.

E-Mail: wss@unb.ca
Phone: **Appointments: 453-4646**
(College of Extended Learning)
Writing Centre: 452-6346



Web Site: <http://extend.unb.ca/wss/>

FINISHING UP

Oral Examinations and Acceptance of Thesis/Report

The School of Graduate Studies and Research publishes a document entitled “Regulations and Guides for the Preparation and Submission of Graduate Theses and Reports” which should be consulted by students before starting to write their thesis. Copies of this document may be obtained from the Graduate School website. The deadlines for the submission of thesis and reports are indicated in the Graduate Calendar along with regulations concerning examining boards and examination procedures. The School of Graduate Studies and Research are quite rigid in these regulations and deadlines, and it is advisable to be familiar with them well in advance of starting to prepare the thesis. Another useful tool is the School of Graduation Studies “Checklist for Students Submitting Final Copies” – see *Appendix*.

Acceptance of Thesis/Report (MSc)

To determine if a MSc Thesis is acceptable by the GAU for the Examining Board, the thesis must first be reviewed at the department level. This is done through a departmental oral examination coordinated between the Student, Supervisor, DOGs and Sylvia. A department examining board comprising of the supervisor and a minimum of two other ChE Faculty members will read the thesis and review the oral presentation. This presentation follows the same format as the University Oral Examination but is attended only by ChE Faculty Members with the DOGs acting as Chair.

A letter (or email) by the supervisor should be sent to the ChE DOGs (Dr. Ying Zheng) and the Graduate Assistant (Sylvia) indicating the list of committee members along with the name of the possible future external examiner (the external would be a non-supervising member from a GAU other than that in which the candidate has studied.). **The External Examiner is not to be given a copy of the thesis to review until successful completion of the department oral.** It is expected that the committee will require a minimum of seven days to review the thesis before the department oral is held. Students need to email Sylvia an electronic copy of the abstract and complete title for notice purposes.

After the successful completion of the Department Oral the supervisor can confirm the list of committee members along with the external examiner. The external examiner must be given a minimum of seven days to review the thesis. The supervisor will notify the DOGs and Assistant of a suitable date and time for the University Oral. At this time an official Oral Notice can be prepared and distributed and announced on Universities website and email list inviting the public to attend. The graduate school requires that notices be advertised for a minimum of seven days.

It is the student's responsibility to photocopy their thesis/report, and to ensure that the members of the Examining Board receive their copy of the thesis or report.

After successful completion of the University Oral the student will make any recommended corrections and submit the final copies in labeled “blue” boxes along with the proper forms to the School of Graduate Studies. The forms may be obtained from the Graduate Assistant (Sylvia).

Acceptance of Thesis/Report (PhD)

To determine if a PhD Thesis is acceptable by the GAU for the University Oral, the thesis must be reviewed through a departmental oral examination coordinated between the Student, Supervisor, DOGS and Grad Assistant. A department examining board will normally comprise of the Supervisor, The DOGS who will act as Chair and two members of the GAU. The committee will read the thesis and review the oral presentation. It is expected that the committee will require a minimum of seven days to review the thesis before the department oral is held. Students should email Sylvia an electronic copy of the abstract and title for notice purposes. The presentation follows the same format as the University Oral Examination but is attended only by ChE Faculty Members. **The External Examiner is not to be given a copy of the thesis to review until successful completion of the department oral.**

Upon successful completion of the Department Oral the following will be sent to the Dean of Graduate Studies

- 1) A letter from the Director of Graduate Studies indicating the nomination for the examination committee (A sample of this letter is included in Appendix A). The examination committee will consist of the following:
 - Supervisor
 - 3 members of the School of Graduate Studies (At least one must be from ChE and at least one must be from outside ChE.
 - External Examiner (please note criteria)
- 2) Completion form (green – available from grad assistant)
- 3) Copies of thesis for each member of the examining board in labeled blue boxes.
- 4) Conflict of interest form (external reviewer)
- 5) Purolator shipping slip completed with external examiners address information.

From this point on, the Graduate School will handle the University Oral and make all arrangements once the External Examiner has submitted their recommendation. This process could take from 6 – 12 weeks depending on how long the external examiner takes in reviewing the dissertation and the availability of the Dean of Graduate Studies. It is important to note that all contact with the external examiner must be done through the graduate school. The examiner is not to be contacted by the candidate or the candidate’s supervisor. Questions may be directed to Jackie Seely at jseely@unb.ca or 453-4672.

See PhD Completion timeline in the Appendix for a step-by-step guide.

Department Clearance

When a student is ready to leave UNB, a ChE clearance form must be completed before leaving to confirm that all keys have been returned, desk cleaned out etc.

Laboratory Safety

The responsibility for the management of laboratory safety is the responsibility of all Faculty, Staff and Students. Everyone should be concerned with safety whenever they are working in a laboratory setting.

All students/employees require WHMIS training before they are allowed to deal with chemicals. The supervisor is responsible for providing a safety orientation of the working environment to identify all safety equipment, potential hazards and proper safety procedures. Please note that chemicals will not be given to anyone without showing your valid WHMIS card.



If you are not given a safety orientation when you go to work in a new area, you must ask for one. It is your responsibility to know the hazards in the area so you can remain safe. You are responsible for your safety.

Safety is covered in CHE 6511, and the Chemistry Department offers WHMIS training each fall. There is also a WHMIS video that your supervisor can arrange to borrow from UNB's Environmental Health & Safety office.

General Laboratory Rules

The proper personal protective equipment must be worn at all required times. The required equipment is always a lab coat and safety glasses, and any other pieces the situation calls for. This could be nuclear badges, dust masks, shields etc. The extra pieces of equipment are to be provided by the supervisor if required. NO open toe shoes may be worn in the lab and shorts and skirts should be avoided as exposed skin is always more susceptible to chemical spills.

Always wash your hands with soap before leaving the laboratory.

No food or drink is allowed to be consumed or STORED in the laboratory. Food should always be kept outside the lab. You should never risk the consumption of chemicals.

Always be aware of the emergency equipment in the room and it's location, i.e. fire extinguisher, eye wash station.

The MSDS (Material Safety Data Sheets) binder is located on the wall next to the entrance door. Everyone in the lab is required to know where the MSDS binder is located so that

proper emergency procedures can be followed in case of an accident with a chemical. The university is required by law to keep the MSDS data up to date in the laboratories. Therefore it is the students responsibility to insure that every chemical that they introduce into the laboratory had it's accompanied MSDS placed in the binder in alphabetical order and that the chemical inventory sheet is updated. The sheets are only valid for 3 years and are required to be replaced after they expire. Chemicals that are no longer in the lab should have their sheet removed from the binder and the inventory updated.

To avoid accidents the work place should always be kept clean and tidy. Chemicals and equipment that are no longer in use should be returned the Chemical Stores.

Emergency Procedures

All emergency procedures can be found in the UNB safety handbook online at www.unb.ca/safety. A guide is located next to all telephones in the laboratories.

The Department Safety Officer, Carl Murdock (453-4518) and your supervisor must be informed of all accidents and near misses. Near misses are just as important to report as accidents. This is to avoid the situation occurring again causing a real accident. If a problem is not identified as a near miss then the result could be an accident.

Should an accident occur a UNB accident report form must be completed within 24 hours.

Chemical Handling

Effective April 1, 2010 anyone requesting chemicals must have a valid WHMIS card. This card must be presented to the Store Clerk.

Transporting chemicals must be done with great care. The safety of the general public (everyone in the general vicinity) must always be of the utmost importance. There are proper procedures outlined in the TDG – transport of dangerous goods.

Compressed gas cylinders must always be transported on a cart and must be properly restrained at all times.

For more information on the proper handling please check with the stores manager, Carl Murdock, in room B14.

Chemical Labeling

Every container that holds a chemical requires a label.

Labels should include the following in CLEAR BLOCK LETTERING:

- IN ENGLISH, the name of the chemical (abbreviations, common names, and formulas are not acceptable),
- the concentration of the chemical,
- the date the bottle was first opened, or the date the mixture was created,
- the name of the individual that the chemical belongs to.

Chemical Waste

Chemical Waste is anything that is generated from chemicals that must be disposed of in a special manner.

This could include products from chemical reactions, gas cylinders, contaminated containers and broken glass.

In chemical waste containers only compatible chemicals may be stored together. It is the responsibility of the student to understand what chemicals are in the waste container and to be able to identify if their waste is compatible or not.

All chemical waste containers must be properly labeled as "CHEMICAL WASTE", and must note the names of the chemicals in the container and their approximate quantities. Listing the container as "solvent waste" is NOT an acceptable label.

Detail and care must be taken when labeling the waste since this will make disposal safer.

Gas Cylinders

Gas cylinders are of special concern, they pose 3 hazards. They could fall over and onto someone and cause injury. They could fall and have the valve sheared off, allowing the discharge of contents which could cause the cylinder to become a projectile. Also, if the regulator or valve is leaking, hazardous gas could be released into the air.

Gas cylinders must be properly retained at all times during storage and transportation.

Proper regulators must always be used.

Full and empty cylinders should always be stored separately.

Chemical Storage

All chemicals must be properly stored according to their specific requirements. The Storage requirement must be known (MSDS) and followed.

Acids and bases should always be stored separately from one another. This is to avoid undesired contact between the two types of chemicals. Acids sometimes warrant special storage facilities, but in general simply keeping them in separate designated cabinets is acceptable.

Flammable and corrosive and toxic chemicals must always be stored separately.

Full and empty gas cylinders should always be stored in separate areas, and they should be MARKED as EMPTY or FULL.

The maximum allowable container size is 5 liters (exceptions to this rule are found in the policy on flammable liquids). The maximum quantity of flammable liquids that are allowed to be kept in a given lab is 50 liters.

Your Rights

You always have the right to refuse to do work you do not feel is safe.

According to Work Place Health and Safety no one can be forced to do work they feel puts them at risk. The situation can be assessed and then the proper safety precautions can be put in place

You can request extra PPE (Personal Protection Equipment) if you feel it necessary.



*Wearing Personal Protective Equipment (PPE)
May Not be Fashionable but Neither is an Injury*

Attachments

FREDERICTON CAMPUS

Building Name - 911 Address - Access Code

1. Aitken House - 14 Bailey Dr.
2. Aitken University Centre - 20 Mackay Dr. - A/C
3. Alden Nowlan House - 676 Windsor St. - C
4. Alumni Memorial Building - 13 Bailey Dr. - A
5. Annex C - 13 Macaulay Lane - A/C
6. Bailey Hall - 10 Bailey Dr. - A/B/C
7. Bank/Bookstore Building - 29 Dineen Dr. - A
8. BMO Centre - 25 Mackay Dr. - A/C
9. Bridges House - 45 Mackay Dr.
10. Brydone Jack Observatory - 5 Bailey Dr.
11. Burden Academy - Windsor St.
12. Campus House - 11 Garland Ct.
13. Carleton Hall - 19 Macaulay Lane - A/B/C
14. C.C. Jones Student Services Centre - 26 Bailey Dr. - A/B/C
15. Central Heating Plant - 950 College Hill Rd.
16. College Hill Daycare - 850 Montgomery St. - A/C
17. Computer Science Information Technology Centre - 550 Windsor St. - A/B/C
18. CURRIE CENTER - The Richard J. - 15 Peter Kelly Dr. - A/B/C
19. Elizabeth Parr-Johnston Residence - 34 Mackay Dr. - A/B/C
20. Enterprise UNB Building #1 - 2 Garland Ct.
21. Enterprise UNB Building #2 - 8 Garland Ct.
22. Facilities Management - 767 Kings College Rd. - C/E
23. Forestry & Geology Building - 2 Bailey Dr.
24. Gillin Hall - 540 Windsor St. - A/B/C
25. Harriet Irving Library - 5 Macaulay Lane - A/B/C
26. Harrison House - 12 Macaulay Lane
27. Head Hall - 15 Dineen Dr. - A/B/C
28. Head Hall/Old Civil Engineering - 17 Dineen Dr. - B
29. Head Hall/Electrical Engineering - 19 Dineen Dr.
30. Header House - 4 Garland Ct.
31. Hut #5 - 5 Garland Ct.
32. I.U.C. Forestry - 28 Dineen Dr. - B
33. I.U.C. Physics & Admin. - 8 Bailey Dr. - A/B/D
34. I.U.C. Science Library - 4 Bailey Dr. - A/C
35. Joy W. Kidd House - 42 Mackay Dr. - A/B/C
36. Keirstead Hall - 38 Dineen Dr. - A/B/C
37. Lady Beaverbrook Gym - 2 Peter Kelly Dr. - A
38. Lady Beaverbrook Residence - 9 Dineen Dr. - A
39. Lady Dunn Hall - 40 Mackay Dr. - A/B/C
40. Ludlow Hall - 41 Dineen Dr. - A/B/C
41. MacKenzie House - 43 Mackay Dr. - A/E
42. MacLaggan Hall - 33 Dineen Dr. - A/B/C
43. Magee House - 780 Montgomery St. - A/B/C
44. Marshall d'Avray Hall - 10 Mackay Dr. - A/B/C
45. McConnell Hall - 19 Bailey Dr. - A/B/C
46. McCord Hall - 7 Bailey Dr.
47. McLeod House - 810 Montgomery St. - A/B
48. Memorial Hall - 9 Bailey Dr. - A/C
49. Muriel McQueen Fergusson Centre - 678 Windsor St. - A/B/C
50. Neill House - 22 Bailey Dr.
51. Neville Homestead - 58 Mackay Dr.
52. Neville-Jones House - 16 Bailey Dr.
53. New Brunswick Community College Fredericton Campus - 26 Duffie Dr. - A/B/C
54. NRC Institute for Information Technology - e-Business - 46 Dineen Dr. - A/B/C
55. Provincial Archives - 23 Dineen Dr. - A/B/C
56. Press Box - 25 Mackay Dr.
57. Renaissance College - 811 Charlotte St. - A/C
58. Residence Administration - 20 Bailey Dr. - E
59. R.N. Scott Hall - 25 Dineen Dr. - A/B/C
60. Residence Storage Building - 810 Montgomery St.
61. Salt Storage Building - 948 College Hill Rd.
62. Singer Hall - 7 Macaulay Lane - A/C
63. Sir Howard Douglas Hall - 3 Bailey Dr.
64. South Gym - 16 Mackay Dr. - A/B/C
65. Student Union Building - 21 Pacey Dr. - A/B/C
66. Tibbits Hall - 40 Mackay Dr. - A/B/C
67. Tilley Hall - 9 Macaulay Lane - A/B/C
68. Toole Hall - 30 Dineen Dr. - A/C
69. UNBEA Building 10 - 10 Garland Ct.
70. Wu Centre/College of Extended Learning - 6 Duffie Dr. - A/B/C









ST. THOMAS UNIVERSITY

Building Name - 911 Address - Access Code

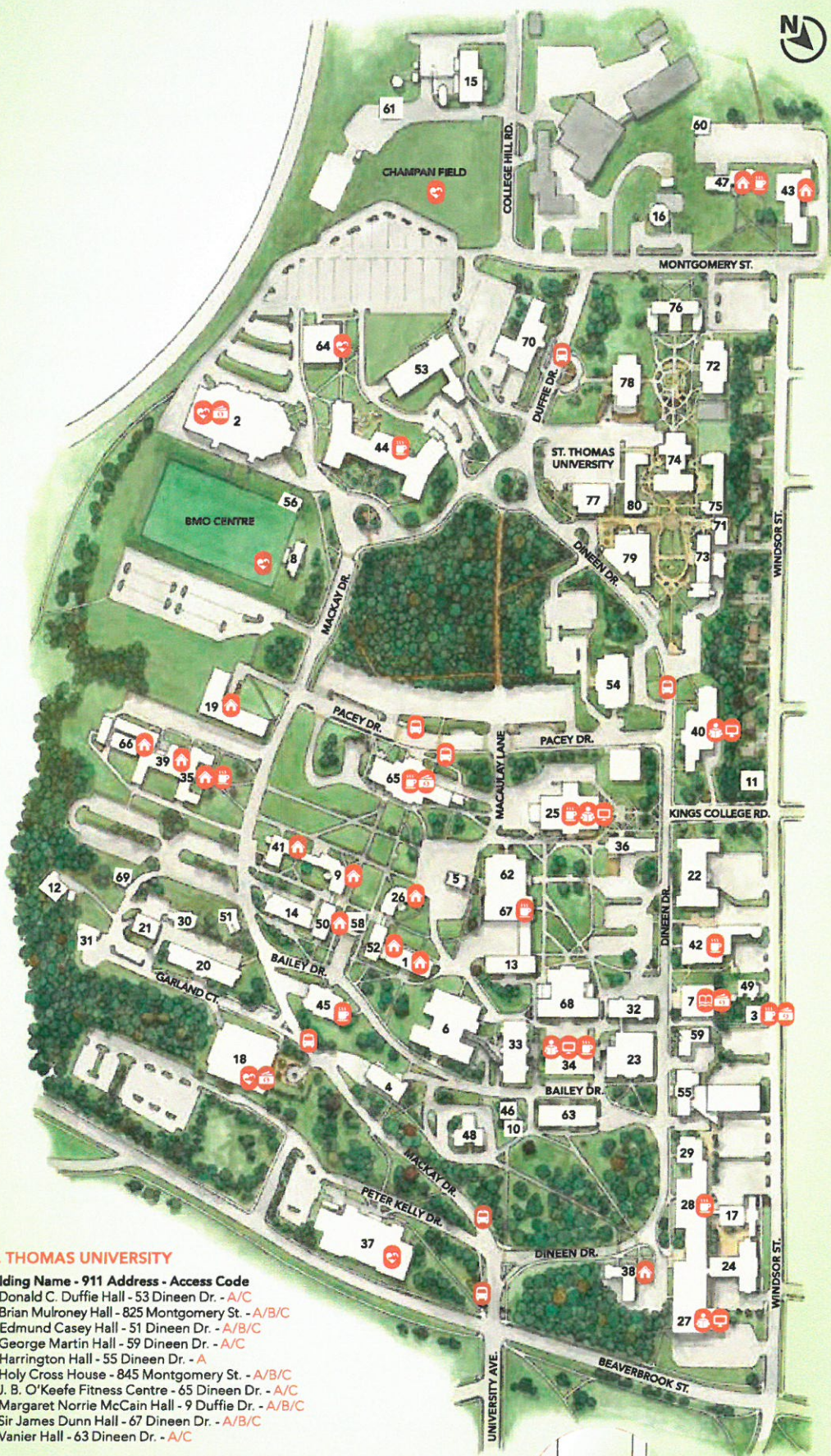
71. Donald C. Duffie Hall - 53 Dineen Dr. - A/C
72. Brian Mulroney Hall - 825 Montgomery St. - A/B/C
73. Edmund Casey Hall - 51 Dineen Dr. - A/B/C
74. George Martin Hall - 59 Dineen Dr. - A/C
75. Harrington Hall - 55 Dineen Dr. - A
76. Holy Cross House - 845 Montgomery St. - A/B/C
77. J. B. O'Keefe Fitness Centre - 65 Dineen Dr. - A/C
78. Margaret Norrie McCain Hall - 9 Duffie Dr. - A/B/C
79. Sir James Dunn Hall - 67 Dineen Dr. - A/B/C
80. Vanier Hall - 63 Dineen Dr. - A/C

Access Key

- A Level or ramp entrance
- B Elevator
- C Accessible restroom
- D Assistance needed from parking lot (no curb break)
- E One step up to entrance

- | | | |
|---|---|---|
|  Bookstore |  Food services |  Bus stop |
|  Library |  Bank machine |  Athletic facilities |
|  Residence |  Computer lab | |

For the most current information on accessibility call 506-453-4830



Chemical Engineering Course Registration Approval Form

Name: _____

Fall 2017

Student Number: _____

Winter 2018

Course Number	Schedule (Time)	Credit/Aud/Extra *

* Please note that if courses are being taken as Extra or Audit that you must also complete a "Graduate Student Course Change Form"

Supervisor's Name: (Print) _____

Supervisor Signature: _____

Date: _____

Approved: _____
Dr. M. Eic, Dir. Graduate Studies

Date: _____



School of Graduate Studies - Graduate Student Course Change Form

Student's Family Name: []

Student's Given Name: []

Student I.D. Number: []

Program: []

e.g. M.A. History, M.Sc. Forestry

A. Semester (check only one) [] Fall [] Winter [] Summer [] Year

B. Campus: [] Fredericton [] Saint John Status: [] Full-time [] Part-time

Course Adds/Drops

Table with columns: I.D. Number, Course, Section, Title, "X" / "AUD", Add, Drop, Instructor's Approval. Includes an example row for ED*6002.

- Note: - Authorizing signatures from instructors... - "X" [Extra]: course excluded... - "AUD" [Audit]: course in which no grade or credit is assigned. - Status change from part-time or full-time...

Student's acknowledgement: I acknowledge that the information on this form is correct and that I have selected courses in accordance with procedures outlined in the Graduate Calendar or by the GAU.

Student's Signature []

Date: []

Director of Graduate Studies' Approval []

Date: []

School of Graduate Studies Approval []

Date: []

For SGS Use only: Course change form processed: []

UNIVERSITY OF NEW BRUNSWICK
SCHOOL OF GRADUATE STUDIES



Graduate Degrees conferred since 1830

Making a significant difference

ANNUAL PROGRESS REPORT
FOR RESEARCH-BASED STUDENTS

ANNUAL PROGRESS REPORT DUE DATES:

- 1) SEPTEMBER 1: NURSING, INTERDISCIPLINARY PROGRAMS, KINESIOLOGY
MASTER OF BUSINESS ADMINISTRATION
- 2) OCTOBER 15: COMPUTER SCIENCE
- 3) DECEMBER 1: SCIENCE, EDUCATION
- 4) FEBRUARY 1: FORESTRY
- 5) MARCH 1: ARTS
- 6) JUNE 1: ENGINEERING, PSYCHOLOGY

PART A: TO BE COMPLETED BY THE STUDENT (please print or type)

FAMILY NAME: _____ GIVEN NAME(S): _____

MAILING ADDRESS: * _____
Number Street Name

_____ City Province Postal Code

TELEPHONE: _____ E-MAIL: _____

M.A.B.: CHEMICAL ENGINEERING STUDENT NUMBER: _____

DEGREE: _____ YEAR OF STUDY IN THIS DEGREE: _____

PLEASE EVALUATE YOUR PROGRESS DURING THE LAST ACADEMIC YEAR

A. INDICATE WHICH PROGRAMME REQUIREMENTS HAVE BEEN COMPLETED IN THE PAST YEAR AND WHICH, IF ANY, REMAIN TO BE COMPLETED:

B. INDICATE THE DATES (OR NUMBER OF) AND AGENDA OF MEETINGS HELD WITH YOUR ADVISOR OR SUPERVISORY COMMITTEE IN THE PAST ACADEMIC YEAR:

C. IF YOU HAVE EXCEEDED THE TIME ALLOWED FOR THE COMPLETION OF YOUR DEGREE PROGRAMME, PROVIDE REASONS WHY YOUR PROGRAMME REQUIREMENTS (INCLUDING THE THESIS , IF APPLICABLE) HAVE NOT BEEN COMPLETED:

D. OUTLINE A DETAILED TIMETABLE FOR THE COMPLETION OF YOUR PROGRAMME REQUIREMENTS (INCLUDING THE THESIS, IF APPLICABLE):

E. EXPECTED DATE OF THESIS DEFENCE/DATE EXPECTED TO COMPLETE DEGREE (MONTH/YEAR): _____
MM / YYYY

STUDENT'S SIGNATURE _____ DATE: _____

PART B: TO BE COMPLETED ONLY BY STUDENTS CURRENTLY HOLDING AN NSERC, SSHRC, OR CIHR AWARD

Please check which Graduate Award you are currently holding:

- | | | | | |
|---|--------------------------------------|-------------------------------------|-------------------------------------|------------------------------------|
| <input type="checkbox"/> NSERC – PGSM | <input type="checkbox"/> NSERC-PGSD, | <input type="checkbox"/> NSERC-CGSM | <input type="checkbox"/> NSERC-CGSD | <input type="checkbox"/> NSERC-IPS |
| <input type="checkbox"/> SSHRC-DOCTORAL | <input type="checkbox"/> SSHRC-CGSM | <input type="checkbox"/> SSHRC-CGSD | <input type="checkbox"/> NSHRF | |
| <input type="checkbox"/> CIHR-DOCTORAL | <input type="checkbox"/> CIHR-CGSM | | | |

PLEASE SUBMIT COMPLETED FORM TO YOUR SUPERVISOR OR ADVISOR ↗

PART C: TO BE COMPLETED BY SUPERVISOR OR ADVISOR (please print or type)

COMMENT ON THE STUDENT'S PROGRESS DURING THE PAST ACADEMIC YEAR. IF APPLYING FOR AN EXTENSION, PROVIDE EXPLANATION:

EXPECTED COMPLETION DATE: _____
DD MM YYYY

SUPERVISOR OR ADVISOR'S NAME: _____

SIGNATURE: _____ DATE: _____

PLEASE LIST THE MEMBERS OF THE SUPERVISORY COMMITTEE:

PLEASE SUBMIT COMPLETED FORM TO THE DIRECTOR OF GRADUATE STUDIES FOR COMMENTS & SIGNATURE ↗

PART D: TO BE COMPLETED BY THE DIRECTOR OF GRADUATE STUDIES (please print or type)

*I HAVE READ AND CONCUR WITH THIS ANNUAL PROGRESS REPORT: YES NO

*NSERC/SSHRC/CIHR STUDENT AWARD HOLDERS ONLY: IN MY OPINION, THE AWARD HOLDER IS MAKING SATISFACTORY PROGRESS IN HIS/HER PROGRAMME. YES NO

*EXTENSION REQUESTED: YES NO

ADDITIONAL COMMENTS:

DIRECTOR OF GRADUATE STUDIES NAME: Dr. Ying Zheng, Chemical Engineering

SIGNATURE _____ DATE _____

SIGNATURE OF STUDENT: I HAVE SEEN THIS REPORT _____ DATE _____

PLEASE SUBMIT COMPLETED FORM TO THE SCHOOL OF GRADUATE STUDIES OFFICE ↗

PART E: TO BE COMPLETED BY THE DEAN OR DESIGNATE AT THE SCHOOL OF GRADUATE STUDIES

COMMENTS:

COMMENTS:

EXTENSION: YES NO

NSERC SSHRC CIHR

SGS APPROVAL: _____

SGS APPROVAL: _____

DATE: _____

DATE: _____

TO BE COMPLETED BY THE SCHOOL OF GRADUATE STUDIES

SATISFACTORY UNSATISFACTORY SIGNATURE _____

Chemical Engineering

General Guidelines for the Research Proposal Examination

The research proposal is more comprehensive than the one required by CHE 6511, in particular, the sections of literature review and the proposed research program. Detailed instructions are provided in the template shown below. The obtained experimental results, if there are any, may be included in this proposal.

A formal proposal with the approval of supervisor(s) is required to submit to a committee, made of the thesis supervisor(s), together with 2 additional faculty members. An oral examination will be scheduled, which consists of 20- 25 minutes presentation, followed by a comprehensive oral examination by the committee on the presented proposal, as well as the associated chemical engineering fundamentals.

Research proposal for Qualifying Exam | 2014

Proposal

<Project Name>

<Student Name>

Advisor: <Faculty Member's Name>

Submitted in partial fulfillment

Of the requirements of a

Masters Science Project or Doctoral Degree

<Date>

Research proposal for Qualifying Exam | 2014

Preface

This is a proposal for the Research Project for partial fulfillment of the requirements of the Master of Science degree or Doctoral Degree at the University of New Brunswick, Fredericton, NB.

This proposal provides the scope and context of the project to be undertaken. It also provides a schedule for the completion of the project, including a list of all the deliverables.

The intended audience of this document is the graduate faculty of the Chemical Engineering department so that they can determine whether the project should be approved as proposed, approved with modifications, or not approved.

Student Name

iii

Research proposal for Qualifying Exam | 2014

Table of Contents

<Generate here>

Student Name

iv

1. Introductory Paragraphs

The primary goal of the introductory paragraphs is to catch the attention of the readers and to get them "turned on" about the subject. It sets the stage for the paper and puts your topic in perspective. The introduction often contains dramatic and general statements about the need for the study. It uses dramatic illustrations or quotes to set the tone. When writing the introduction, put yourself in your reader's position - would you continue reading?

2. Statement of the Problem

The statement of the problem is the focal point of your research. It is just one sentence (with several paragraphs of elaboration).

While the problem statement itself is just one sentence, it is always accompanied by several paragraphs that elaborate on the problem. Present persuasive arguments why the problem is important enough to study. Include the opinions of others (scientists, politicians, other professionals). Explain how the problem relates to business, social or political trends by presenting data that demonstrates the scope and depth of the problem. Try to give dramatic and concrete illustrations of the problem. **After writing this section, make sure you can easily identify the single sentence that is the problem statement.**

3. Objectives

Describe the objectives of the project, both short and long term. Briefly describe the approach.

4. Significance of the Study

Student Name

1

Clearly describe the expected significance and contributions made to the scientific field. Explain how the new knowledge and technology is expected to impact on the field of the proposed research.

5. Literature Search

No project is developed in isolation. Either there are related projects available that can be used as inspiration or there is information about the problem to be approached. Review comprehensively the relevant research, especially the developments in past ten years. Address the key priorities and limitations/knowledge gaps in the research area. Explain how the research relates to the current scientific, technical and commercial developments in the field with references to literature pertinent to the proposal, and describe the background research on which the project is built. References must be cited.

6. Research Questions and/or Hypotheses

List the research questions or hypotheses. Some paragraphs of elaboration could be included in this section. An example of a list of research questions would be:

The research questions for this study will be:

1. What are the effects of...on....
2. Is there a significant difference between...
3. Is there a significant relationship between...

7. Methodology and work plan

Student Name

2

This is one of the key components of the proposal. Describe the approach, the research methodology, the experimental design and techniques. Specify the research activities to be carried out in order to accomplish the objectives of research projects. Provide evidence/justification that the described actual work is sufficient to the resolution of the technical objectives. Theoretical considerations, experimental procedures, application of experimental apparatus, selection of materials, environmental conditions or controls, and related matters should be described in sufficient detail to allow qualified scientific personnel to evaluate the feasibility of the approach, its probability of success, identify potential problem areas, to contribute suggestions or experience toward their resolution, and to evaluate progress during the performance of the project.

8. Obtained research results

Clearly present the research results that have been obtained so far. Use the results to support the research methodology provided above.

9. Milestones

List milestones with expected starting/completion dates of the project and concisely describe the activities for each milestones.

10. Expected Results and Project Deliverables

Describe the expected results and deliverables against the milestones. Provide a concise explanation of the expected results and project deliverables.

Examples of project deliverables include:

- Establishment of optimal conditions for a process

Student Name

3

- Demonstration of concept (concept validation)
- Development of a new analytical methodology
- Development of a numerical model
- Publications (refereed or non-refereed)
- Final Report, MSc thesis, of PhD Dissertation

11. References

Insert here any document referred to in the proposal.

12. Nomenclature

Student Name

4

Research proposal for Qualifying Exam 2014

Definitions

<Insert here any technical word for which the meaning may not be known. Do not assume that the readers have specialized knowledge in the *application*. Use a table format for these >

WHEN SUBMITTING YOUR FINAL COPIES TO THE SCHOOL OF GRADUATE STUDIES, PLEASE PUT THEM IN BLUE BOXES, LABELS ON EACH BOX WITH YOUR NAME & DEGREE. Blue boxes (empty & recycled) are usually available at the School of Graduate Studies office.

- 2 Copies (original + copy) single-sided to fulfill degree requirements are required.** (Graduate Studies & the Library covers the binding costs). “White Binding Form” should be included, please complete & attach with the library copies. If you submit a copy to the Electronic Thesis Dissertation at etd.submit@unb.ca and cc jseely@unb.ca, the Graduate School only requires 1 original paper copy (single-sided).
- Personal copies you wish bound.** Students are responsible to submit their personal copies they wish bound directly to the Circulation Desk at the Harriet Irving Library and pay for the binding. Binding fees are listed on the “Pink Binding Form”. Please complete the pink form & submit with your printed personal copies in blue boxes to the library. SGS or your Supervisor’s signature is required on the pink binding form before the library will accept & process. The personal copies must also be formatted according to the SGS Regulations & Guidelines.

THE FOLLOWING FORMS SHOULD BE INCLUDED WITH YOUR FINAL COPIES SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES:

- 2 Harriet Irving Library Deposit Forms** – both forms to be completed by the student dated & signed with the supervisor’s signature.
- (White) UNB Thesis, Dissertation or Report Binding Form** – Should be completed & submitted with the 2 copies for the library.
- Non-Exclusive License to Reproduce Theses /Dissertations** – Form completed by students submitting a thesis/dissertation. Students submitting a report are not required to complete this form.
- Approval of Duplicated Copies of Dissertation/Thesis/Report** – This form is used when you request UNB Print Services to make the copies for you. Print Services will sign the form to certify that they have produced quality copies adequate for binding.
- Report on Master’s Thesis/Report (blue form)** – Completed by Dept/Faculty with the signatures of Director of Graduate Studies, Supervisor, Members of the Examining Board Committee.
- Completion of GAU Requirements for Masters Degree or Diploma (yellow form)** – Completed by the Dept/Faculty with the signature of the Director of Graduate Studies. This form can be submitted separately by the Graduate Secretary.
- Ph.D. only – The Completion of GAU requirements for Ph.D. Degree (Green form)** – This form is submitted to the Graduate School at the time the GAU submits your dissertation for final examination.

Note:

- Master’s student ready to submit final copies, should verify with the Graduate Secretary in the Dept/Faculty in regards the above-noted completion forms.
- Ph.D. students will be given a set of completion forms by the Dean of Graduate Studies after the oral defence.

Student’s signature

Date

CHECKLIST FOR STUDENTS SUBMITTING FINAL COPIES:

Prior to the submission of final copies of your Master's thesis, report, or PhD dissertation, it is very important that the formatting conforms according to the formatting regulations & guidelines or the School of Graduate Studies will not accept your final copies. **Please send by e-mail attachment a PDF doc. of your thesis, report or dissertation to jseely@unb.ca**, so that she can review the formatting before you make arrangements to print final copies and submit to the School of Graduate Studies.

Here is a checklist to help:

MARGINS

- The left hand side margin is not less than 4cm or 1.5 inches on each sheet.**
- The top, bottom and right-side (including all illustrations and all other materials bound with the thesis) on each sheet are not less than 2.5 cm or 1 inch on all other sides.**

TEXT

- The entire text of the thesis, dissertation or report must have the same font and the text **double-spaced including your Abstract, Acknowledgement, Dedication pages (except for quotations of more than one sentences, footnotes, tables and bibliography).** *Note: The print & duplication must be of highest quality. Only solid black print is acceptable. Broken, uneven, blurred or draft quality dot matrix or light print is not acceptable.*

TITLE PAGE

- Your title page is formatted according to the "Sample Title Page" according to the Regulations & Guidelines for the Preparation & Submission of Theses, Dissertations and Reports.

TABLE OF CONTENTS

- Your Table of Contents is formatted according to the "Sample Page" found in the Regulations & Guidelines. **Make sure you also include your Abstract, Dedication, Acknowledgements, List of Tables, etc. with Roman Numeral numbers,** prior to the Introduction (page 1) in your Table of Contents.

CURRICULUM VITAE

- Your CV is included at the end of your thesis, dissertation or report with no page number.** Your CV should also be added at the end of your Table of Contents with no page number. Please refer to the "Sample Page" in the Regulations & Guidelines.

APPLY TO GRADUATE

- Application to Graduate** – You are required to complete & submit the on-line application to Graduate, even if you do not plan on attending the ceremony. There are deadlines to apply, please visit the website: <http://www.unb.ca/graduation/>