

# Chemical Engineering

2015/2016

## Program Guide



Chemical Engineering provides the basic scientific engineering knowledge for the design, construction and operation of equipment and plants that process materials by chemical and physical operations into desired products. The curriculum is aimed at provision of a broad background in the underlying sciences of Chemistry, Physics and Mathematics, and detailed knowledge of Chemical Engineering principles, that will enable the graduate to proceed to further academic degrees by study and research at this University or elsewhere, or to carry on research, development or production operations in any process industry.

Students can choose the general program or specialize in an area by completing an option program: Energy Conversion Engineering or Biomedical Engineering Option.

The Department of Chemical Engineering considers practical training and close contact with Industry an important aspect of the engineering curriculum. The Industrial Practice Program includes both the two week Chemical Engineering Practice School and the work term or co-op components carried out in industry.

### ***Course renumbering & timetable changes***

- CHE 1004: Renamed to CHE 2003 (*Fundamentals I – Mass Balances*)
- CHE 2004: Renamed to CHE 2004 (*Fundamentals II – Mass & Energy Balances*)

### ***Course Pre/co-requisites***

- CHE 2012: Removed CHE 2004 as a co-requisite
- CHE 2412: Changed CHE 2004 from pre-requisite to co-requisite
- CHE 2525: Changed CHE 2004 from pre-requisite to co-requisite
- CHE 3505: Changed CHE 3123 from co-requisite to pre-requisite
- CHE 3601: Changed CHE 3304 from co-requisite to pre-requisite
- CHE 4101: Changed CHE 3123 from pre-requisite to co-requisite
- CHE 4225: Added CHE 3304 as a Prerequisite.
- The Department of Chemical Engineering has the policy to enforce all pre- and co-requisites, and the course instructor conducts pre- and co-requisite checks throughout the term. If it is discovered that you do not have the appropriate pre- and co-requisites for a course at any time during the term then you will be withdrawn from the course by the Registrar's Office. If you have any questions with respect to a course's pre/co-requisites then please contact the instructor.

***Technical Electives*** Please see the list of technical electives for 2015/2016 in the following pages. The department remains committed to offering its students a breadth of technical elective courses, consistent with the faculty's expertise and our option programs. Please be aware that elective courses from other engineering departments are considered creditable courses with the permission of the Director of Undergraduate Studies.

***Academic Advisors*** The academic advisors for the 2015 - 2016 academic year are:

1st year, 2<sup>nd</sup> year, and arriving transfer students: Dr. Guida Bendrich

3rd year: Dr. Mladen Eic

4th year, 5<sup>th</sup> year: Dr. William Cook

I wish you all well and best of luck in your studies in 2015 - 2016!

Guida Bendrich – July 15, 2015



# Technical Electives

**Technical Electives are scheduled as follows for 2015-2016:**

## Fall 2015

**CHE 5244                  Enhanced Oil Recovery Processes    3 ch (3C)**

Overview of the principles of petroleum engineering. Topics include fluid and rock properties, oilwell drilling, reservoir types, review on wettability, capillary pressure, relative permeability, multiphase flow in porous media, volumetric estimates and recoverable reserves, radial flow analysis of well performance, reservoir performance analysis, secondary and tertiary oil recovery. Offshore development and production of hydrocarbon resources.

**CHE 5515                  Advanced Surface Characterization    3 ch (3C 1L)**

This course covers the basic principles and practical aspects of several advanced surface analysis techniques which include (i) x-ray photoelectron spectroscopy (XPS or ESCA), (ii) secondary ion mass spectrometry (SIMS), (iii) confocal laser scanning microscopy (CLSM), (iv) atomic force microscopy (AFM), and (v) scanning electron microscopy (SEM). Demonstrations will be given on most of these facilities. Students will propose a research method for tackling their interested problems by using one or two surface analysis techniques they have learned from this course. Prerequisite CHE 2501 and CHE 2506.

**CHE 5834                  Nuclear Engineering    3 ch (3C)**

Radio-active decay, fission energy, nuclear interactions, neutron scattering and adsorption,. Neutron diffusion elementary reactor theory, four and six factor formulae, neutron flux variation. Reactor kinetics, source multiplication, decay heat, reactor start-up and shut down. Fuel burnup, fission product poisoning, refuelling. Temperature and void effects on reactivity, reactor control. Fuel handling and waste disposal. This course is intended for senior level students. Prerequisites: CHE 2012 or ME 3413; CHE 2703 or equivalent.

## Winter 2016

**CHE 5254                  Polymer Reaction Engineering and Polymer Processing    3 ch (3C)**

Basic polymer concepts. Polymer structural characteristics and properties. Mechanisms, kinetics and reactors for polymerization. Polymer rheology and transport processes. Processing applications and the effects of processing on polymer properties. Prerequisites: CHE 2501, CHE 2703, Math 3503. Co-requisite: CHE 3304 or equivalent.

**CHE 5413                  Air Pollution Control    3 ch (3C)**

Sources of air pollution; modeling atmospheric dispersions; pollution control in combustion; particulate control methods; control of gaseous emissions; industrial odour control; indoor/in-plant air quality. Prerequisite: CHE 3314. Co-requisite: CHE 4341.

**CHE 5522                  Nanotechnology    3 ch (3C)**

Studies the science of nanotechnology and surveys current and emerging applications of nanomaterials and nanodevices in many engineering disciplines. The unique physical properties of materials at the nano-meter scale are discussed and explained. Fabrication methods and advanced instrumentation for the construction, manipulation and viewing of nanometer-sized materials are presented. Pre-requisite: CHEM1982/1987 or equivalent, plus 100ch of degree credit. Restricted to science and engineering students.

A two week industrial practice school in selected industrial process plants scheduled after spring examinations. Groups of students, with Faculty supervisors, are assigned to engineering projects to be carried out on industrial process units. Students are required to present an oral report to plant operating and technical personnel at the end of the practice session. A written report is also required. As there will be practical limitations to the number of students in any one practice school, application for positions in this course will be treated on a first-come, first-served basis. This course is strongly recommended as a technical elective for students not planning to complete either the co-op or professional experience programs. Prerequisites: CHE 2004, CHE 2412.

## **Non-Technical Electives**

Non-technical electives are an important element of engineering education. Regardless of engineering role, engineers require an appreciation of business concepts, good communication skills and a broad sense of the impact of technology on society. Most engineers end up in management roles, making decisions on time, people and money. It is wise therefore, for students with an interest in management to choose their complimentary studies courses carefully. In the chemical engineering program at UNB, three of the four non-technical elective courses required for the degree (12 ch total) are area specific:

Humanities (3 ch) – Sociology, Anthropology, History, Philosophy, Classics, Political Science

Business (3 ch) – Any TME or ADM course; or select ECON courses

Non-Language (3 ch) – Any Humanities or Business course; PSYC, RLS, ENV5, ENR, IDS, RCLP, ARTS, WLCS

Other (3 ch) – must be approved by the Director of Undergraduate Studies

The Department STRONGLY recommends that students to obtain business-related education through the complementary studies stream and to pursue a diploma in **Technology Management and Entrepreneurship** which is offered by the Faculty of Engineering. For more information on integrating this diploma with the undergraduate degree in chemical engineering, please contact the Director of Undergraduate Studies.

## **Transfer Credits**

As per university regulations, current students who are seeking transfer credit for courses taken at other institutions must receive permission prior to taking the course. Courses that have been taken without the proper approvals will not be counted towards your degree. Please obtain the appropriate permission slip (Request Form for Off-Campus Study) from the UNB Registrar or online [http://www.unb.ca/cel/\\_resources/pdf/bis/off-campus-study-form.pdf](http://www.unb.ca/cel/_resources/pdf/bis/off-campus-study-form.pdf), and seek approval from the Director of UG Studies for any courses you wish to take.

## **Pre- and Co-Requisites**

Pre- and co-requisites are important guideposts along the degree program path. You must not attempt a chemical engineering course without having its stated pre- and co-requisites. If you find yourself out of sequence in the program (for example, as a transfer student or because of a late withdraw), please seek advising from the Academic Advisor or Director of UG Studies, and obtain official permission from the course instructor before enrolling into a course: a record of this permission must be put into your personal file in the Department. There is enough flexibility in the program to allow minor deviations, but no student will be allowed to take courses out of sequence if they are in academic jeopardy ( $GPA \leq 2.2$ ).

## **Course Equivalents**

Please note that students must follow the course program only. Students are NOT permitted to take any other courses in place of the required courses. Permission may be granted under exceptional circumstances, however, credit will not be given without a letter of permission on file.

# Chemical Engineering Option Registration Form

- refer to Calendar or Program Guide for details on Option programs
- the Department of Chemical Engineering reserves the right to remove registration in a chosen Option program, where students do not register in Option courses or where their studies clearly diverge from that Option program.
- the Department of Chemical Engineering will ensure that all students registered in an Option have a reasonable opportunity to complete that Option over two academic years of study.
- withdrawing from or failing Option courses is normally not a problem, but either could potentially make subsequent completion of an Option impossible.
- admission to Options is automatic for students enrolled in the BScE (Chemical Engineering) program who have successfully completed both ChE 2004 (or 2014) and ChE 2012, **along with the completion of this form.**

Name: \_\_\_\_\_ UNB email: \_\_\_\_\_

ID # \_\_\_\_\_ Expected Graduation Year: \_\_\_\_\_

For a list of courses required for completion of the Options below please refer to the Program Guide.

OPTIONS (You may register in more than one Option)

**Biomedical Engineering Option**

---

**Energy Conversion Engineering Option**

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

Please return this completed form to the Chemical Engineering Office.

## Biomedical Engineering Option in Chemical Engineering

The Biomedical Option is available to students in the Department of Chemical Engineering. In order to enter the option program students must meet approval by the Department of Chemical Engineering.

To complete the option program the student must complete four technical electives (12 ch minimum), consisting of one core course (which is normally offered every year),

APSC 3953	Basis of Biomedical Engineering	3ch
-----------	---------------------------------	-----

and three courses selected from the list below (most courses are offered every year):

BIOL 2023	Biochemistry	3ch
BIOL 3043	Cell Biology	3ch
BIOL 2023	Evolutionary Genetics	3ch
BIOL 2753*	Introduction to Human Anatomy	3ch
BIOL 2792	Human Physiology - Systems	3ch
CHEM 3003**	Biocomputing in Drug Design I	5ch
CHEM 4523	Medicinal Chemistry	3ch
KIN 2062*	Introductory Biomechanics	3ch
KIN 3061*	Advanced Biomechanics	4ch
KIN 4163*	Workplace Ergonomic Design And Analysis	3ch
ME 5913	Biomechanics	4ch
PHYS 5993	Magnetic Resonance Imaging	3ch

\* some option courses require that Biol 2753 be taken as a pre-requisite.

\*\* some option courses require that Biol 1001 be taken as a pre-requisite.

Students with a special interest in biology and biochemical engineering are encouraged to pursue a Minor in Biology through the Faculty of Science. Such students should seek advising from the Director of Undergraduate Studies to embark upon this path as soon as possible in the degree program.

## Energy Conversion Engineering Option in Chemical Engineering

This option places emphasis on emerging technologies and societal issues in the energy and environment sector within chemical engineering. This directed path consists of 3 technical elective courses and 1 complementary studies course (minimum total of 15 ch) selected from the approved lists below. Students may elect to receive a further specialization within the ECE Option by focusing their technical electives in nuclear & power plant technology, oil & gas processing or environmental disciplines.

To participate in the option, students must seek approval of the department.

### Core:

CHE 5313            Energy and the Environment

### Complementary Studies Elective: (1 course from the following list):

ECON 3865            Energy Economics  
ENVS 2003            Intro. to Environmental Studies  
ENVS 2023            Climate Change  
ENVS 4001            Environmental Impact Assessment and Management  
ENVS 4002            Stakeholder Approaches to Environmental Problem Solving  
ENR 2021            Natural Resource Management, Institutions, Policy, Governance  
HIST 3925            Technology and Society

### Technical Elective: (3 courses from the following list):

#### Oil & Gas Processing

CHE 5234            Oil Refining and Natural Gas Processing  
CHE 5244            Enhanced Oil Recovery  
CHE 5264            Oil Sands Technology  
CHE 5933            Biorefining: Principles, Processes and Products

#### Nuclear & Power Plant Technology

CHE 5344            Combustion  
CHE 5744            Steam Supply Systems  
CHE 5824            Corrosion Processes  
CHE 5834 or        Nuclear Engineering  
ME 5373            Nuclear Engineering

#### Environmental

CE 5432            Wastewater Treatment and Pollution Control  
CHE 5314            Chemical Process Industries  
CHE 5413            Air Pollution Control  
ME 5553            Ocean Wave Energy Conversion  
ME 5933            Industrial Ecology

Students with special interest in environmental studies are also encouraged to pursue a minor or secondary major in this area through the university's *Environmental Studies Program*, administered by the Faculty of Forestry and Environmental Management. The Department also encourages interested students to pursue a Masters of Engineering degree in environmental studies after graduation.

# International Exchange

## Student Abroad

UNB recognizes that we live in an increasingly globalized world. This is why the university provides students with overseas opportunities. The Student Abroad Program involves exchanges, internship programs or courses at overseas institutions. Visit [www.unb.ca/exchange](http://www.unb.ca/exchange) for more information on where you can go, how to get there, and other ways to get involved internationally!

Are you setting sails to new horizons? If yes, there are a few things that you should be aware of before departing. To help you get ready for an experience of a lifetime, detailed information on entry requirements, passports & visas information, study permit, travel warnings, immunization, fees, travel advice, etc, are necessary. The Global Learning and Engagement Team has several resources available to you. Please contact them for more information.

## Chemical Engineering Exchange Programs

Students should consult the Director of Undergraduate Studies for further information on the ChE exchange programs.

### *Australia:*

James Cook University, <https://secure.jcu.edu.au/app/studyfinder/index.cfm>

Swinburne University of Technology (Biomedical Engineering) <http://www.future.swinburne.edu.au/courses>

University of Melbourne (<http://www.unimelb.edu.au/>)

University of Tasmania (Biomedical Engineering)

### *China:*

Xiamen University

### *Denmark:*

Aarhus University <http://kursuskatalog.au.dk/en/>

### *France:*

École Supérieure de Chimie Physique Électronique de Lyon (<http://www.cpe.fr/fr2/default.asp> )

Summer School at CPE Lyon <http://www.cpe-international-students.com/-Summer-school-.html>

MICEFA, <http://micefa.org>

Université de Bretagne-Sud

Université de Poitiers

### *Germany:*



Hochschule Furtwangen University

Otto von Guericke University

***Hong Kong:***

Hong Kong Polytechnic University, [Biomedical Engineering](#)

***Korea:***

Korea University

***Norway:***

Bergen University College (<http://www.hib.no/english/index.html> )

***Singapore:***

Nanyang Technological University

***Spain:***

Universidad de Santiago di Compostela

***Thailand:***

Chulalongkorn University

***United Kingdom:***

Swansea University, Wales



For more information on these programs, drop by the Department Office and get the full detailed handout.

***UNB Engineering Co-Op Program***

Students enrolled in Chemical Engineering have the opportunity to participate in the Engineering Co-op program. The schedule on the next page shows how work terms fit into your schedule and the overall impact on your date of graduation. The co-op office hosts workshops during the fall and winter terms designed to help with the preparation of résumé and cover letter writing, as well as interviewing techniques. We will be contacting you after classes begin by email with important dates.

Those interested in spending time working in Germany can take advantage of the opportunity to experience European culture and work for companies such as Mercedes, Bosch, and Behr. Be sure to like “UNB Engineering Co-op” on Facebook to see stories and pictures from past students who have gone.

For more information regarding co-op opportunities contact [Enggcoop@unb.ca](mailto:Enggcoop@unb.ca) or stop by the Co-op office in H107.

## Chemical Engineering Co-op Scheduling

Students completing their BScE in Chemical Engineering may wish to gain work experience during their studies. The co-op program in Chemical Engineering is recommended for students who wish to maximize the reinforcement between academic and work experience. The schedule shown below is the recommended pattern of work terms for students in the co-op program who wish to add no more than one year to their time at UNB. By simply switching the order in which terms 5 and 6 are taken, it is possible to fit 20 months of co-op experience into a five-year degree program. An example of a 16 month Co-op term is also shown.

		<b>standard program</b>	<b>recommended co-op schedule</b>	<b>16 month Co-op work term after third year</b>
<b>year 1</b>	Sept.	term 1	term 1	term 1
	Jan.	term 2	term 2	term 2
	May			
<b>year 2</b>	Sept.	term 3	term 3	term 3
	Jan.	term 4	term 4	term 4
	May			
<b>year 3</b>	Sept.	term 5	co-op	term 5
	Jan.	term 6	term 6	term 6
	May		co-op	
<b>year 4</b>	Sept.	term 7	term 5	co-op
	Jan.	term 8	co-op	
	May	<i>graduation 4 years</i>	co-op	
<b>year 5</b>	Sept.		term 7	term 7
	Jan.		term 8	term 8
	May		<i>graduation 5 years</i>	<i>graduation 5 years</i>

**Note:** The minimum cumulative GPA for participation in the Co-Op Program is 2.7

## **Diploma in Technology Management and Entrepreneurship (DTME) for Chemical Engineering Students**

The Department STRONGLY recommends students obtain business-related education through the complimentary studies stream and pursue a Diploma in Technology Management and Entrepreneurship (DTME) which is offered by the J. Herbert Smith Centre in the Faculty of Engineering. By planning ahead, and with careful selection of courses, you can complete this diploma concurrently with your degree while only taking one additional course. And there is no additional cost for this program!

The diploma requires completion of five courses, up to four of which can be shared with your degree. To most easily meet the requirements of your degree and the DTME concurrently:

1) Select one of the following as your humanities course:

HIST 3925: Technology and Society	HIST 3975: History of Life Sciences
POLS 1603: Politics of Globalization	SOCI 2533: Information Society
SOCI 2534: Technology and Social Change	

2) Select one of the following as your non-language course:

ADM 1213: Financial Accounting	ADM 1313: Principles of Marketing
ADM 2513: Organizational Behaviour	ADM 2815: Human Resource Management
ADM 3123: Business Law I	ADM 3155: International Business
ADM 3713: Management Information Systems	ADM 4326: Customer Satisfaction and Loyalty
ADM 4615: Operations Management I	HIST 3925: Technology and Society
HIST 3975: History of Life Sciences	IDS 2001: Intro. to International Development Studies
POLS 1603: Politics of Globalization	RCLP 2001: Practicing Leadership in Community Projects
TME 3346: Marketing of Technological Goods and Services	

3) Select your business course from the list below (prerequisite: completion of 80 ch):

4) Select your 'other' course from the list below (prerequisite: completion of 80 ch):

5) Select one additional course from the list below (prerequisite: completion of 80 ch):

TME 3013: Entrepreneurial Finance	TME 3113: Bus. Planning and Strategy in an Entrepreneurial Env.
TME 3213: Quality Management	TME 3313: Managing Engineering and IT Projects
TME 3413: Technological Creativity and Innovation	TME 3423: Technological Risk and Opportunity

For more information, please visit [www.unb.ca/tme](http://www.unb.ca/tme)

You should register for the diploma early by completing the form at

[http://www.unb.ca/fredericton/engineering/tme/resources/pdf/admission\\_application.pdf](http://www.unb.ca/fredericton/engineering/tme/resources/pdf/admission_application.pdf)

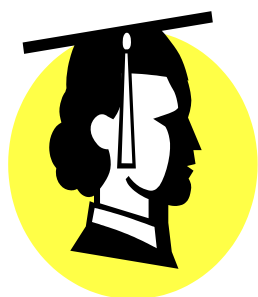
# Plagiarism



The Department has a zero tolerance policy on plagiarism. Teaching Assistants and instructors will aggressively identify and severely penalize offenders, even for minor infractions.

The minimum penalty for plagiarism is a grade of zero on the work and a notation on your transcript.

## Graduation Policy for Chemical Engineering (BScE)



The policy on graduation described in the UNB Calendar is that students must complete the degree as it is defined when they start a program. Unfortunately, this isn't really practical when courses are deleted or changed, so Chemical Engineering uses a modified version of this regulation: the policy is the lesser of the requirements when you start your degree and those when you complete it. If a course is dropped or changed in the program we will always make every attempt to ensure a reasonably fair transition. However, students who fail courses close to a change in requirements may sometimes be required to complete additional credit hours as a result. Following the recommended four-year program is generally the best way to avoid complications due to rule changes.

## *Deferred Exams*

You are expected to follow the exam schedule set by the Registrar.

Students who by reason of illness or extenuating circumstances are unable to write final examinations at the specified times may apply to the Registrar for permission to write deferred exams written medical permission is required.

The Department of Chemical Engineering has set deferred examination dates of Thursday, January 7, 2016 and Thursday, May 5, 2016. Students who cannot write on these dates will normally be required to appeal for further deferral via the Registrar's Office.

For full Deferred Examination regulations please refer to University Regulations in the Undergraduate Calendar.





**Degree Audit Form Chemical Eng.  
Students Entering in 2015/2016**

Name: \_\_\_\_\_ Date: \_\_\_\_\_

UNB ID: \_\_\_\_\_ email: \_\_\_\_\_

UNB Course	ch	Course equivalents	Grade(s)	Notes	UNB course	ch	Course Equivalents	Grade(s)	Notes
ChE 1001	1				Phys 1081	5			
ChE 2003	3				Engg 1082	4			
ChE 2004	3								
ChE 2012	3				CS 1003	4			
ChE 2412	3				EE 1813	4			
ChE 2418	3				Engg 1001	0	Engg 1013		
ChE 2501	3				Engg 1003	4			
ChE 2506	1				Engg 1015	2			
ChE 2525	4								
					Engg 4013	3			
ChE 2703	3								
ChE 3123	3				Biol 1001	3			
ChE 3304	4				Math 1003	3			
ChE 3314	3				Math 1013	3			
ChE 3324	4				Math 1503	3			
ChE 3424	3				Math 2513	4			
ChE 3434	3				Math 3503	3			
ChE 3505	4								
ChE 3601	4				Stat 2593	3			
ChE 4101	3								
ChE 4225	8				NTE Humanities	3	Anth, Clas, Hist, Phil, Pols, Soci		
ChE 4341	4				NTE Business	3	ADM, TME, Econ		
ChE 4404	3				NTE Non-Lang	3	Hum, Bus, Psyc, RLS, ENV5, ENR, IDS, RCLP, ARTS, WLCS		
CHE TE									
CHE TE					NTE Other	3			
CHE TE									
CHE TE									
					Notes:				
					<p>The above are the courses required for the ChE Program. Course substitutions from the program are NOT permitted without prior approval from the department. If approval to take another course has been given a copy of the permission must be given to Sylvia for your file.</p>				
Chem 1982/1987	5								
Chem 2401	3								
Chem 3621	3								
Chem 3886	2								
Chem 3897	1								
Chem 4886	2								

## RECOMMENDED 4-YEAR PROGRAM FOR STUDENTS ENTERING IN 2015

### Mondays, Wednesdays & Fridays

Time	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6	Term 7	Term 8
8:30 AM	CS 1003	CHEM 1982	CHE 2012	MATH 3503	CHE 3324			
9:00 AM								
9:30 AM	MATH 1503	CHE 1001 (W)	CHEM 2401		CHE 3123	CHE 3314		
10:00 AM								
10:30 AM	PHYS 1081	ECE 1813	CHE 2003	CHE 2703		CHE 3601	CHE 4101	
11:00 AM								
11:30 AM	MATH 1003	MATH 1013	MATH 2513	CHE 2525	CHE 3304	CHE 3505	CHE 4341	NTE or TE
12:00 PM								
12:30 PM			BIOL 1001	CHE 2004	NTE or TE	CHE 2418	NTE or TE	NTE or TE
1:00 PM								
1:30 PM	ENGG 1003 (M,W)	ENGG 1082			CHEM 3621	NTE or TE		
2:00 PM	ENGG1001 (F)							
2:30 PM								
3:00 PM								
3:30 PM	ENGG 1003 (M)	ENGG 1082 (M)		CHE 2412 (W or F)	CHEM 3886 (M) {alternative second section in evening}		CHE 4225 (W)	CHE 4225 (W)
4:00 PM		CHEM 1987 (W)						
4:30 PM								
5:00 PM								
5:30 PM								
6:00 PM								
6:30 PM		+NTE						
7:00 PM								

### Advising Information

Fall Term

### Tuesdays

8:30 AM	CS 1003	ECE 1813	CHE 2501	MATH 3503				
9:00 AM								
9:30 AM							CHE 4101	
10:00 AM								
10:30 AM				STAT 2593		CHE3505	CHE 4341	
11:00 AM								
11:30 AM	ENGG 1015		MATH 2513	CHE 2703	CHE 3324	NTE or TE		
12:00 PM								
12:30 PM		NTE						
1:00 PM								
1:30 PM				CHE 2412				
2:00 PM								
2:30 PM								
3:00 PM								
3:30 PM	PHYS 1081	ECE 1813			CHE 3424 {alternative M or W or Th}	CHE 3434 {alternative M or W or Th}		CHEM 4886 {alternative F}
4:00 PM								
4:30 PM								
5:00 PM								
5:30 PM								
6:00 PM								
6:30 PM								ENGG 4013
7:00 PM								

Winter Term

### Thursdays

8:30 AM	MATH 1003	MATH 1013	CHE 2501		CHE 3424	CHE 3434		
9:00 AM								
9:30 AM					CHE 3304			
10:00 AM								
10:30 AM				STAT 2593		CHE 3601		
11:00 AM								
11:30 AM				CHE 2004		NTE or TE		
12:00 PM								
12:30 PM		NTE	CHE 2012					
1:00 PM							CHE 4404	CHE 4404
1:30 PM				CHE 2525				
2:00 PM								
2:30 PM								
3:00 PM	ENGG 1015							
3:30 PM			CHE 2506			CHEM 3897		
4:00 PM								
4:30 PM								
5:00 PM								
5:30 PM								
6:00 PM								
6:30 PM								ENGG 4013
7:00 PM								

Summer Term

lecture	tutorial	lab	elective
---------	----------	-----	----------

## Chemical Engineering Faculty

<u>Name</u>	<u>Office Phone</u>	<u>Room No.</u>	<u>Email</u>
Guida Bendrich	447-3238	E39A	bendrich@unb.ca
Felipe Chibante	452-6266	Room 204 (Bld. 2)	chibante@unb.ca
Frank Collins	452-6063	E230F	fcollins@unb.ca
William Cook	452-6318	E230C	wcook@unb.ca
Michel Couturier	453-4690	GD126	cout@unb.ca
Mladen Eić	453-4689	D32B	meic@unb.ca
Kecheng Li	451-6861	I-217 Enterprise UNB	<a href="mailto:kecheng@unb.ca">kecheng@unb.ca</a>
	453-4628	E230B	kecheng@unb.ca
Brian Lowry	453-4691	C119	bjl@unb.ca
Jamie Miles	458-7308	D106	jamie.miles@unb.ca
Yonghao Ni (Chair)	452-6066	D39	yonghao@unb.ca
Laura Romero-Zeron	453-5044	D32A	laurarz@unb.ca
Kripa Singh	453-5108	H214	singhk@unb.ca
Huining Xiao	453-3532	E46B	hxiao@unb.ca
Ying Zheng	447-3329	E39B	yzheng@unb.ca

### ChE Office Info

Phone: 453-4520

Fax: 453-3591

Location: D-39 (Head Hall)

Hours: winter - 8:15 - 4:30, summer 7:45 - 4:00 (closed for lunch: noon-1 pm)

### Faculty Advisors

Guida Bendrich	<i>1<sup>st</sup> and 2<sup>nd</sup> Year and Transfer Students</i>
Mladen Eic	<i>3<sup>rd</sup> Year</i>
Willy cook	<i>4<sup>th</sup> and 5<sup>th</sup> Year</i>

### Director of Undergraduate Studies (for 2015/2016)

Guida Bendrich  
bendrich@unb.ca  
447-3238

### Student Studies Assistant (Undergraduate Studies)

Sylvia Demerson  
sdemerso@unb.ca  
453-4520