

Chemical Engineering, MSChE

For program contact information, please visit this website (<https://che.northeastern.edu/academics/graduate-studies/ms-chme/>).

The Master of Science in Chemical Engineering is normally pursued by students with a Bachelor of Science in Chemical Engineering or closely allied fields. Students wishing to pursue the master's degree but with undergraduate educational backgrounds other than chemical engineering may be required to complete supplementary undergraduate coursework. These courses are in addition to the minimum course requirements. Students enrolled in the program are encouraged to seek guidance from their instructors and advisor regarding additional coursework that may supplement the graduate curriculum.

Students originally admitted to the master's degree program who wish to switch to the PhD program must petition the associate chair for graduate studies. If admission is granted, then the student must satisfy all the requirements of the doctoral degree program, including the requirements for doctoral candidacy.

Course Requirements

A minimum of 32 semester hours of academic work is required to qualify for the Master of Science degree in chemical engineering.

If pursuing a thesis option, at least 8 semester hours of thesis credit must be included as part of these 32 semester hours of credits. In addition, each student pursuing a thesis option must enroll in the department's seminar course for each semester they are working toward their degree. The faculty advisor and the student establish the sequence of courses that students take to pursue the Master of Science in Chemical Engineering.

If pursuing a coursework option, students must complete a minimum of 32 semester hours of coursework and no enrollment in the seminar course is required. See required core courses and example elective courses for all graduate students (p. 2).

Degree Requirements	Thesis Option	Coursework Option
Required core courses	16 SH	16 SH
Master of Science thesis	8 SH	N/A
Seminar	0 SH	N/A
Elective courses	8 SH	16 SH
Minimum semester hours required	32 SH	32 SH

Thesis Requirements

Students pursuing a Master of Science in Chemical Engineering with thesis must submit to the Graduate School of Engineering a written thesis that is approved by the thesis committee and department chair. For details, see the graduate school requirements and electronic submittal instructions (<https://coe.northeastern.edu/academics-experiential-learning/graduate-school-of-engineering/graduate-student-services/dissertation-thesis-instructions/>). MS with thesis students must also complete an oral master's thesis defense in order to successfully complete the program. The student will be expected to form a master's thesis committee, composed of a minimum of three members—one who is the advisor, one other faculty member from the chemical engineering department, and one member from outside the department. The oral presentation will be open to the public, including students, faculty, and the candidate's committee.

Part-time Students

Part-time students may progress according to their plans and time constraints but within the seven-year time limit. A minimum of 32 semester hours of academic coursework is required for part-time students. The thesis and seminar course are not required for part-time students pursuing a master's degree.

Master of Science students wishing to change their status from part-time to full-time must notify the chemical engineering department and make a formal petition to the Graduate School of Engineering. Refer to the regulations of the Graduate School of Engineering for further information on academic administrative policies.

Departure Prior to Thesis Completion

Occasionally, students must leave the chemical engineering department prior to completion of all degree requirements. In such instances, long time intervals have often elapsed before thesis or manuscript submission. Accordingly, the department has adopted the guideline that a student cannot submit a thesis for credit beyond three years after the student stops actively pursuing the research. Exceptions may be granted upon petition to the departmental graduate committee. Petitions must demonstrate extenuating circumstances and prove that the research is still of value to the profession.

Graduate Certificate Options

Students enrolled in a master's degree have the opportunity to also pursue one of the many engineering graduate certificate options in addition to or in combination with the MS degree. Students should consult their faculty advisor regarding these options (<http://catalog.northeastern.edu/graduate/engineering/graduate-certificate-programs/>).

GORDON INSTITUTE OF ENGINEERING LEADERSHIP**Master's Degree in Chemical Engineering with Graduate Certificate in Engineering Leadership**

Students may complete a Master of Science in Chemical Engineering in addition to earning a Graduate Certificate in Engineering Leadership (<http://catalog.northeastern.edu/graduate/engineering/multidisciplinary/engineering-leadership-graduate-certificate/>). Students must apply and be admitted to the Gordon Engineering Leadership Program in order to pursue this option. The program requires fulfillment of the 16-semester-hour curriculum required to earn the Graduate Certificate in Engineering Leadership, which includes an industry-based challenge project with multiple mentors and 16 semester hours of required chemical engineering coursework.

ENGINEERING BUSINESS**Master's Degree in Chemical Engineering with Graduate Certificate in Engineering Business**

Students may complete a Master of Science in Chemical Engineering in addition to earning a Graduate Certificate in Engineering Business. Students must apply and be admitted to the Galante Engineering Business Program in order to pursue this option. The program requires the applicant to have earned or be in a program to earn a Bachelor of Science in Engineering from Northeastern University. The integrated 32-semester-hour degree and certificate will require 16 semester hours of the chemical engineering core courses and 16 semester hours from the outlined business-skill curriculum. The coursework, along with participation in cocurricular professional development elements, earn the Graduate Certificate in Engineering Business. (<http://catalog.northeastern.edu/graduate/engineering/mechanical-industrial/engineering-business-graduate-certificate/>)

Program Requirements

Complete all courses and requirements listed below unless otherwise indicated.

Core Requirements

Code	Title	Hours
CHME 7320	Chemical Engineering Mathematics	4
CHME 7330	Chemical Engineering Thermodynamics	4
CHME 7340	Chemical Engineering Kinetics	4
CHME 7350	Transport Phenomena	4

Options

Complete one of the following options:

COURSEWORK OPTION

Code	Title	Hours
	Complete 16 semester hours from the course list below. (p. 2)	16

THESIS OPTION

Code	Title	Hours
	Thesis Complete the following courses. Please note that students pursuing the thesis option are required to register for CHME 7990 as many times as necessary to complete 8 semester hours and, in addition, must enroll in CHME 7390 for each semester they are working toward their degree.	8
CHME 7390	Seminar	
CHME 7990	Thesis	

Electives

	Complete 8 semester hours from the course list below. (p. 2)	8
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COURSE LIST

Students can take electives outside this list with prior approval from the faculty advisor. Students may complete a maximum of 8 semester hours (thesis option) or 12 semester hours (nonthesis option) of coursework for credit outside the Department of Chemical Engineering under the guidance of their advisor and approval of the chemical engineering graduate program director.

Code	Title	Hours
BIOE 5410	Molecular Bioengineering	
CHME 5101	Fundamentals of Chemical Engineering Analysis	
CHME 5105	Materials Characterization Techniques	
CHME 5137	Computational Modeling in Chemical Engineering	
CHME 5160	Drug Delivery: Engineering Analysis	
CHME 5179	Complex Fluids and Everyday Materials	
CHME 5185	Design of Experiments and Ethical Research (DOEER)	
CHME 5510	Fundamentals in Process Safety Engineering	

CHME 5520	Process Safety Engineering—Chemical Reactivity, Reliefs, and Hazards Analysis
CHME 5621	Electrochemical Engineering
CHME 5630	Biochemical Engineering
CHME 5631	Biomaterials Principles and Applications
CHME 5632	Advanced Topics in Biomaterials
CHME 5683	Introduction to Polymer Science
CHME 5699	Special Topics in Chemical Engineering
CHME 6610	Computational Programs in Process Safety for Relief and Scenario Modeling
CHME 7240	Polymer Science
CHME 7262	Special Topics in Process Safety
CHME 7973	Special Topics in Chemical Engineering
CHME 7978	Independent Study
EMGT 5220	Engineering Project Management
EMGT 6225	Economic Decision Making
EMGT 6305	Financial Management for Engineers
ENGR 5670	Sustainable Energy: Materials, Conversion, Storage, and Usage
ME 5620	Fundamentals of Advanced Materials
NNMD 5270	Introduction to Nanomedicine
NNMD 5272	Nanomedicine Seminar 1
NNMD 5274	Nanomedicine Seminar 2
NNMD 5370	Nanomedicine Research Techniques
NNMD 5470	Nano/Biomedical Commercialization: Concept to Market

Program Credit/GPA Requirements

32 total semester hours required

Minimum 3.000 GPA required