CHEMICAL AND BIOLOGICAL ENGINEERING MS

Degree Requirements

The following requirements are in addition to, or further elaborate upon, those requirements outlined in The Graduate School Policy Guide (https://catalogs.northwestern.edu/tgs/academic-policies-procedures/).

The Chemical and Biological Engineering program offers a Coursework Master's and a Thesis Master's. The different requirements are described below.

Coursework Master's

Total Units Required: 10[1]

Course	Title
Department Core Courses (3 units)	
Choose three from core chemical engineering topics:	
CHEM_ENG 421-0	Fluid Mechanics
CHEM_ENG 422-0	Heat and Mass Transfer
CHEM_ENG 408-0	Chemical Engineering Kinetics and Reactor Design
CHEM_ENG 404-0	Advanced Thermodynamics
Electives (7 units)	
Department Electives (3 units)	
Three electives must be taken within the department.	
Additional Electives (4 units)	
Additional electives may be from within or outside the department from approved math, science, Chemical Engineering, or other engineering courses.	

[1] For coursework master's: at least 6 courses in Chemical and Biological Engineering are required; this includes the 3 required distribution courses.

Other Coursework MS Degree Requirements

- **Examinations:** none specified
- **Research/Projects:** none specified
- **Master's Thesis:** none specified
- **Other:** students are strongly recommended to take the CHEM_ENG 520-0 Professional Development in Chemical and Biological Engineering 1 course on professional skills and are also urged but not required to attend the quarterly departmental research seminar.

Thesis Master's

Total Units Required: 10[2]

Course	Title
Department Core Courses (3 units)	
Choose three from core chemical engineering topics:	
CHEM_ENG 421-0	Fluid Mechanics
CHEM_ENG 422-0	Heat and Mass Transfer
CHEM_ENG 408-0	Chemical Engineering Kinetics and Reactor Design
CHEM_ENG 404-0	Advanced Thermodynamics
Electives (4 units)	
Department Electives (1 unit): One elective must be taken within the department.	
Additional Electives (3 units): Additional electives may be from within or outside the department from approved math, science, Chemical Engineering, or other engineering courses.	
Research (3 units)	
3 unit thesis (three units of independent study projects)	
CHEM_ENG 499-0	Projects

[2] For thesis master's: at least 4 courses in Chemical and Biological Engineering are required; this includes the 3 required distribution courses.

Other Thesis MS Degree Requirements

- **Departmental Seminar:** students are urged but not required to attend
- **Short Courses:** Students are required to attend the Responsible Conduct of Research course.
- **Examinations:** defense of thesis
- **Research/Projects:** towards thesis
- **Master's Thesis:** based on current research in the field
- **Other:** students are strongly recommended to take the CHEM_ENG 520-0 Professional Development in Chemical and Biological Engineering 1 course on professional skills and are also urged but not required to attend the quarterly departmental research seminar.