CHEMICAL ENGINEERING DEGREE

Students must also complete the Undergraduate Registration Requirement (https://catalogs.northwestern.edu/undergraduate/requirements-policies/undergraduate-registration-requirement/) and the degree requirements of their home school.

Course Requirements (48 units)

Core Courses (32 units)

1. 4 mathematics courses (https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext)
2. 4 engineering analysis and computer proficiency courses (https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext)
3. 4 units of basic science:
   - PHYSICS 135-2 & PHYSICS 135-3 General Physics and General Physics
   - CHEM 131-0 & CHEM 132-0 General Chemistry 1 and General Chemistry 2
   - or CHEM 151-0 & CHEM 152-0 Accelerated General Chemistry 1 and Accelerated General Chemistry 2
   - or CHEM 171-0 & CHEM 172-0 Advanced General Inorganic Chemistry and Advanced General Physical Chemistry
4. 3 design and communications courses (https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext)

5. 5 basic engineering courses:
   - CHEM_ENG 210-0 Analysis of Chemical Process Systems
   - CHEM_ENG 211-0 Thermodynamics
   - CHEM_ENG 321-0 Fluid Mechanics
   - CHEM_ENG 301-0 Materials Science Principles
   - CHEM_ENG 312-0 Probability and Statistics for Chemical Engineering
     or IEMS 303-0 Statistics

6. 7 social sciences/humanities courses (https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext)

7. 5 unrestricted electives (https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext)

Major Program (16 units)

11 Required Courses:

1. CHEM 210-1 & CHEM 210-2 Organic Chemistry and Organic Chemistry
2. CHEM_ENG 212-0 Phase Equilibrium and Staged Separations
3. CHEM_ENG 275-0 Molecular & Cell Biology for Engineers
4. CHEM_ENG 307-0 Kinetics and Reactor Engineering
5. CHEM_ENG 322-0 Heat Transfer
6. CHEM_ENG 323-0 Mass Transfer
7. CHEM_ENG 341-0 Dynamics and Control of Chemical and Biological Processes
8. CHEM_ENG 342-0 Chemical Engineering Laboratory
9. CHEM_ENG 351-0 Process Economics, Design, & Evaluation
10. CHEM_ENG 352-0 Chemical Engineering Design Projects

5 technical electives:

1. 2 advanced chemical engineering courses from an approved list available from the department
2. 1 engineering course from an approved list available from the department or 1 unit of independent study
3. See general requirements (https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext) for details.
4. PHYSICS 125-2 General Physics for ISP or PHYSICS 140-3 Fundamentals of Physics may be substituted for PHYSICS 135-2 General Physics. PHYSICS 125-3 General Physics for ISP or PHYSICS 140-3 Fundamentals of Physics may be substituted for PHYSICS 135-3 General Physics. Associated labs are PHYSICS 126-2 Physics for ISP Laboratory or PHYSICS 136-2 General Physics Laboratory and PHYSICS 126-3 Physics for ISP Laboratory or PHYSICS 136-3 General Physics Laboratory.
5. BIOL_SCI 201-0 Molecular Biology or BIOL_SCI 202-0 Cell Biology may substitute for CHEM_ENG 275-0 Molecular & Cell Biology for Engineers.