

Required Courses for the ChemBE Undergraduate Degree Fall 2022

Required Mathematics and Science Courses

020.305 Biochemistry (3)
030.205 Organic Chemistry I (4)
110.108 Calculus I (4)
110.109 Calculus II (4)
110.202 Calculus III (4)
173.111 General Physics Lab I (1)

Chemistry (8 credits)

Option 1: no AP credits, take ALL these courses:

030.101 Intro. Chemistry (3)
030.102 Intro. Chemistry II (3)
030.105 Intro. Chemistry Lab I (1)
030.106 Intro. Chemistry Lab II (1)

Option 2: 4 AP credits, take

030.103 Applied Chemical Equilibrium and Reactivity (4)

Option 3: 8 AP credits,

requirement is fulfilled (continue to Organic Chemistry) or for those who want a refresher, take

030.103 Applied Chemical Equilibrium and Reactivity (4)

Physics (8 credits)

Option 1: no AP credits, take one of the following course series:

171.101 General Physics I (4)

171.102 General Physics II (4)

or

171.107 General Physics for Physical Science Majors I (4)

171.108 General Physics for Physical Science Majors II (4)

Option 2: 4 AP credits, take one of these courses

171.102 General Physics II (4)

or

171.108 General Physics for Physical Science Majors II (4)

Option 3: 8 AP credits,

requirement is fulfilled

Take one of the following courses (1 to 3 credits): 020.315

Biochemistry Project Laboratory (1)

030.225 Introduction to Organic Chemistry Laboratory (3)

030.305 Physical Chemistry Instrumentation Laboratory 1 (3)

250.253 Protein Engineering and Biochemistry Laboratory (3)

Take one of the following courses (4 credits):

110.302 Differential Equations with Applications (4)

553.291 Linear Algebra and Differential Equations (4)

Required Core ChemBE Courses

500.113 Gateway Computing/Python (3)

540.101 Chemical Engineering Today (1)

****waived for incoming Class of AY 2022*

540.202 Intro to Chemical and Biological Process Analysis (4)

540.203 Engineering Thermodynamics (3)

540.301 Kinetic Processes (4)

540.303 Transport Phenomena I (3)

540.304 Transport Phenomena II (4)

540.306 Chemical and Biological Separations (4)

540.315 Process Design with ASPEN (2)

540.409 Modeling Dynamics and Control for Chemical and Biological Systems (4)

540.490 Chemical and Biomolecular Lab Safety and Ethics (1)

Take one of the following courses for Senior Lab:

540.311 Projects in Chemical Engineering Unit Operations (4)

540.313 Projects in Chemical and Biomolecular Engineering Unit Operations (4)

Chemical Engineering Lab at DTU (Technical University of Denmark) (4)

Take one of the following course options for Product Design (3 - 6 Credits) Option 1: One-semester design (spring)

540.314 ChemBE Product Design (3)

Option 2: Two-semester design (two consecutive semesters)

540.309 Product Design Part 1 (3)

540.310 Product Design Part 2 (3)

Must take both courses to receive credit. 540.309 counts towards core credits; 540.310 counts toward engineering electives

Option 3: WSE two-semester design (two consecutive semesters)

660.345 Multidisciplinary Engineering Design 1 (3)

660.346 Multidisciplinary Engineering Design 2 (3)

Must take both courses to receive credit. 660.345 counts towards core credits; 660.346 counts toward engineering electives

Required HS Course

661.315 Culture of the Engineering Profession (3)

Take Electives to Meet Credit Requirements 128

credits total

48 credits of Engineering (E designation)

16 credits of Mathematics (must be from 110 or 553)

13 credits Advanced Chemistry and Biology

18 H/S credits (must be six courses that are at least 3 credits each)

GPA Requirements

2.0 overall GPA

2.0 GPA in required core ChemBE courses