

# B.S. in Chemical Engineering

Catalog Year 2024-25

Below is the *advised sequence* of courses for this degree program as of 10/26/2023.

Official degree requirements and course prerequisites are in the University General Catalog; prerequisites are subject to change.

Course Number and Title	Units	Prerequisites/Enrollment Requirements
<b>1<sup>st</sup> Semester</b>		
MATH 122A/B or MATH 125 Calculus I with Applications	5/3	Appropriate Math Placement
CHEM 181 Majors General Chemistry I or *CHEM 151 or 161/163	4	Appropriate Math Placement
ENGL 101 or 107 or 109H First-Year Composition	3	
ENGR 102A/B Introduction to Engineering or ENGR 102	3	<u>ENGR102A</u> : MATH 112 <u>ENGR102B</u> : Pre- or Co-requisite of MATH 112 or higher; First-Year Status; College of Engineering Major
UNIV 101 Intro to the General Education Experience	1	
Semester Total		<b>16/14</b>
<b>2<sup>nd</sup> Semester</b>		
MATH 129 Calculus II	3	MATH 122B or 125 with C or better
*PHYS 141 Introductory Mechanics or PHYS 161H	4	MATH 122B or 125 or Appropriate Math Placement
ENGL 102 or 108 First-Year Composition	3	ENGL 101 or ENGL 107
*CHEM 152 Chemical Thinking II or CHEM 182 or CHEM 162/164 or MSE 110	4	<u>MSE 110</u> : CHEM 151; <u>CHEM 152</u> : CHEM 151 or 141/143 or 161/163 and Appropriate Math Placement
General Education: Exploring Perspectives (Artist)	3	
Semester Total		<b>17</b>
<b>3<sup>rd</sup> Semester</b>		
CHEE 201 Elements of Chemical and Environmental Engineering I (Fall Only)	3	MATH 122B or 125 & CHEM 151 or 141/143 or 181 or 161/163; Completion or concurrent enrollment MATH 129, CHEM 152 or 142/144 or 182 or 162/164 or MSE 110
CHEE 205 Intro to MATLAB and Python	3	MATH 122B or 125
MATH 223 Vector Calculus	4	MATH 129 with C or better
CHEM 246A Lectures in Organic Chemistry or CHEM 241A or 242A	3	CHEM 152, 162 or 182
CHEM 243A Organic Chemistry Laboratory I or CHEM 247A	1-2	CHEM 152, 162/164 or 182; Prerequisites or Concurrent in CHEM 241A or 242A or 246A
General Education: Exploring Perspectives (Humanist)	3	
Semester Total		<b>17/18</b>
<b>4<sup>th</sup> Semester</b>		
CHEE 202 Elements of Chemical & Environmental Engineering II	4	CHEE 201 or 270, and CHEE 201L or 205
CHEE 203 Chemical Engineering Heat Transfer and Fluid Flow	3	CHEE 201, PHYS 141 or PHYS 139 and 140
MATH 254 Intro to Ordinary Differential Equations	3	MATH 129 or 223 with C or better
CHEM 246B Lectures in Organic Chemistry OR CHEM 241B or 242B	3	<u>CHEM 241B/246B</u> : CHEM 241A or 242A or 246A; <u>CHEM 242B</u> : CHEM 242A, Active in the Honors College
PHYS 241 Introductory Electricity and Magnetism or PHYS 261H	4	<u>PHYS 241</u> or <u>261H</u> : PHYS 141 or 140 or 161H; MATH 129 or Appropriate Math Placement Level
Semester Total		<b>17</b>

\*Each of the following foundational science courses satisfies the requirements for General Education: Exploring Perspectives (Natural Scientist): CHEM 151 or 152 or 161 or 162; or PHYS 141 or 161H.

Advanced Standing is required for 300- and 400-level engineering courses (see your academic advisor for details).

Course Number and Title	Units	Comments
<b>5<sup>th</sup> Semester</b>		
CHEE 303 Chemical Engineering Mass Transfer	3	
CHEE 402 Chemical Engineering Modeling	3	
CHEE 301A Chemical Engineering Lab I	1	
SIE 305 Introduction to Engineering Probability and Statistics or MATH 363 Introduction to Statistical Methods	3	
CHEM 480A Physical Chemistry	3	
General Education: Exploring Perspectives (Social Scientist)	3	
Semester Total	<b>16</b>	
<b>6<sup>th</sup> Semester</b>		
CHEE 305 Chemical Engineering Transport Phenomena	3	
CHEE 326 Chemical and Physical Equilibrium	3	
CHEE 301B Chemical Engineering Lab II	1	
Engineering Elective	3	Review list of courses on CHEE website or Consult with your major advisor
Adv Core II Options: CHEE 377, CHEE 483, CHEE 438, CHEE 481A, or CHEM 480B	3	
†General Education: Building Connections	3	
Semester Total	<b>16</b>	
<b>7<sup>th</sup> Semester</b>		
CHEE 420 Chemical Reaction Engineering	3	
CHEE 442 Chemical Engineering Design Principles	3	
CHEE 401A Chemical and Environmental Engineering Laboratory I	1	
Engineering Elective	3	Review list of courses on CHEE website or Consult with your major advisor
Technical Elective – Upper Division Math, Science, or Engineering	1 - 3	Depends on selection of General Education course; Consult with your major advisor for course approval
†General Education: Building Connections	3	
Semester Total	<b>14/16</b>	
<b>8<sup>th</sup> Semester</b>		
CHEE 413 Process Control and Simulation	3	
CHEE 401B Process Dynamics and Control Laboratory	1	
CHEE 443 Chemical Engineering Plant Design	3	
Engineering Elective	3	Review list of courses on CHEE website or Consult with your major advisor
Technical Elective – Upper Division Math, Science, or Engineering	3	Consult with your major advisor
†General Education: Building Connections	3	
UNIV 301 General Education Portfolio	1	
Semester Total	<b>17</b>	

†Students should work closely with their academic advisor to select General Education: Building Connections courses; some course work in the major, such as some Technical Elective courses, may also fulfill General Education: Building Connections requirements.