

# REQUIREMENTS FOR THE BACHELOR OF SCIENCE

## GALLOGLY COLLEGE OF ENGINEERING

### THE UNIVERSITY OF OKLAHOMA

Academic Year
For Students Entering the Oklahoma State System for Higher Education <b>Summer 2025 through Spring 2026</b>

General Requirements	
Minimum Total Credit Hours .....	<b>126</b>
<b>Minimum Retention/Graduation Grade Point Averages:</b>	
Overall - Combined and OU .....	<b>2.00</b>
Major - Combined and OU .....	<b>2.00</b>
Curriculum - Combined and OU .....	<b>2.00</b>

Program
<b>Chemical Engineering - Bioengineering Option</b>
<b>B164</b>
Bachelor of Science

OU encourages students to complete at least hours of applicable coursework each year to have the opportunity to graduate in years.

## GENERAL EDUCATION AND COLLEGE REQUIREMENTS

Courses designated as Core I, II, III, IV, or V are part of the General Education curriculum. Students must complete a minimum of 40 hours of General Education courses, chosen from the approved list, including at least one upper-division Gen. Ed. course outside of the student's major. **Courses graded P/NP will not apply.**

**A grade of C or better is required in each course in the curriculum, including all prerequisite courses.**

## UNIVERSITY-WIDE GENERAL EDUCATION (MINIMUM 40 HOURS) AND COLLEGE REQUIREMENTS

Code	Title	Credit Hours
<b>Core Area I: Symbolic and Oral Communication</b>		
<i>English Composition</i>		
ENGL 1113	Principles of English Composition	3
ENGL 1213	Principles of English Composition	3
or EXPO 1213	Expository Writing	
<i>Language (0-10 hours in the same language)</i>		
This requirement can be met by two years of the same language in high school:		0-10
Beginning Course (0-5 hours)		
Beginning Course, continued (0-5 hours)		
<i>Mathematics</i>		
MATH 1914	Differential and Integral Calculus I (Core I) <sup>1, 2</sup>	4
<b>Core Area II: Natural Science (including one laboratory)</b>		
PHYS 2514	General Physics for Engineering and Science Majors (Core II) <sup>2</sup>	4
CHEM 1315	General Chemistry (Core II-Lab) <sup>2, 3</sup>	5
<b>Core Area III: Social Science</b>		
P SC 1113	American Federal Government	3
Choose one course <sup>4</sup>		3
<b>Core Area IV: Arts &amp; Humanities</b>		
<i>Artistic Forms</i>		
Choose one course <sup>4</sup>		3
<i>Western Culture</i>		
HIST 1483	United States to 1865	3
or HIST 1493	United States, 1865 to the Present	
Choose one course <sup>4</sup>		3
<i>World Culture</i>		
Choose one course <sup>4</sup>		3
<b>Core Area V: First-Year Experience</b>		
ENGR 1413	Pathways to Engineering Thinking (Core V-FYE) <sup>5</sup>	3
<b>Total Credit Hours</b>		<b>40-50</b>

<sup>1</sup> MATH 1823, MATH 2423, MATH 2433, and MATH 2443 sequence can be substituted for MATH 1914, MATH 2924, and MATH 2934.

<sup>2</sup> Major support requirements that also satisfy University General Education requirements.

<sup>3</sup> CHEM 1315 can be substituted with CHEM 1335 or CHEM 1425.

<sup>4</sup> To be chosen from the University-Wide General Education Approved Course List. Three of these hours must be upper-division (3000-4000). See list in the Class Schedule.

<sup>5</sup> Transfer students will need to meet the requirements of the first-year experience course as well as the engineering transfer course. Please see your advisor for your specific enrollment.

## FREE ELECTIVES

Electives to bring total applicable hours to the minimum total required for the degree including a minimum of 40 upper-division hours.

**Bachelor of Science in Chemical Engineering accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the General Criteria and the Chemical, Biochemical, Biomolecular and Similarly Named Program Criteria.**

In order to progress in your curriculum in the Gallogly College of Engineering, and as a specific graduation requirement, a **grade of C or better** is required in each course in the curriculum, including all prerequisite courses.

## MAJOR REQUIREMENTS

Code	Title	Credit Hours
<b>Required Courses</b>		
CH E 2033	Chemical Engineering Fundamentals	3
CH E 2003	Chemical Engineering Computing/Statistics	3
CH E 3113	Momentum, Heat and Mass Transfer I	3
CH E 3123	Momentum, Heat and Mass Transfer II	3
CH E 3473	Chemical Engineering Thermodynamics	3
CH E 3723	Numerical Methods for Engineering Computation	3
CH E 3333	Separation Processes	3
CH E 3432	Unit Operations Laboratory	2
CH E 4473	Kinetics	3
CH E 4262	Chemical Engineering Design Laboratory	2
CH E 4153	Process Dynamics and Control	3
CH E 4253	Process Design & Safety	3
CH E 4273	Advanced Process Design	3
CH E 3313	Structure and Properties of Materials	3
<b>Total Credit Hours</b>		<b>40</b>

## MAJOR SUPPORT REQUIREMENTS

Code	Title	Credit Hours
<b>Math and Science</b>		
BIOL 1124	Intro Biol: Molecule/Cell/Phys	4
CHEM 1435	General Chemistry II: Signature Course	5
CHEM 3053	Organic Chemistry I: Biological Emphasis	3
CHEM 3152	Organic Chemistry Laboratory: Biological Emphasis	2
CHEM 3423	Physical Chemistry I	3
MATH 2924	Differential and Integral Calculus II	4
MATH 2934	Differential and Integral Calculus III	4
MATH 3113	Introduction to Ordinary Differential Equations	3
PHYS 2524	General Physics for Engineering and Science Majors	4
<b>Technical Electives</b>		
Technical Elective I <sup>1</sup>		3
Technical Elective II <sup>1</sup>		3
Technical Elective III <sup>1</sup>		3
<b>Bioengineering Core Electives</b>		<b>3</b>
CH E 4203	Bioengineering Principles	
or CH E 5243	Biochemical Engineering	
<b>Additional College Requirements</b>		
ENGR 2002	Professional Responsibilities and Skills of Engineers and Scientists	2
<b>Total Credit Hours</b>		<b>46</b>

<sup>1</sup> Choose between CHEM 3653, BIOL 3813, BIOL 3103, BIOL 3113, BIOL 3333, BIOL 4843, CH E 5243, CH E 4203, CH E 5293, CH E 5373, CHEM 3753.

More information in the catalog: (<http://ou-public.courseleaf.com/gallogly-engineering/chemical-biological-materials-engineering/chemical-engineering-bioengineering-bachelor-science/>).

## SUGGESTED SEMESTER PLAN OF STUDY

Bachelor of Science in Chemical Engineering accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the General Criteria and the Chemical, Biochemical, Biomolecular and Similarly Named Program Criteria.

In order to progress in your curriculum in the Gallogly College of Engineering, and as a specific graduation requirement, a grade of C or better is required in each course in the curriculum, including all prerequisite courses. Chemical engineering courses are sequential and usually offered only in the semester shown; note prerequisites. (Exception: CH E 5243 is taught alternate spring semesters).

Two college-level courses in a single world language are required; this may be satisfied by successful completion of 2 years in a single world language in high school. Students who must take a language at the University will have an additional 6-10 hours of coursework.

Courses designated as Core I, II, III, IV or V are part of the General Education curriculum. Students must complete a minimum of 40 hours of General Education courses, chosen from the approved list.

Year	FIRST SEMESTER		Hours	SECOND SEMESTER		Hours
FRESHMAN	ENGL 1113	Principles of English Composition ( Core I )	3	ENGL 1213 or EXPO 1213	Principles of English Composition ( Core I ) or Expository Writing	3
	CHEM 1315	General Chemistry ( Core II-Lab ) <sup>1</sup>	5	CHEM 1435	General Chemistry II: Signature Course ( Core II-Lab ) <sup>1</sup>	5
	MATH 1914	Differential and Integral Calculus I ( Core I ) <sup>2</sup>	4	MATH 2924	Differential and Integral Calculus II <sup>2</sup>	4
	ENGR 1413	Pathways to Engineering Thinking ( Core V-FYE ) <sup>3</sup>	3	PHYS 2514	General Physics for Engineering and Science Majors ( Core II )	4
	CREDIT HOURS		15	CREDIT HOURS		16
SOPHOMORE	MATH 2934	Differential and Integral Calculus III <sup>2</sup>	4	MATH 3113	Introduction to Ordinary Differential Equations	3
	PHYS 2524	General Physics for Engineering and Science Majors	4	ENGR 2002	Professional Responsibilities and Skills of Engineers and Scientists	2
	CH E 2033	Chemical Engineering Fundamentals	3	CH E 2003	Chemical Engineering Computing/Statistics	3
	CHEM 3053	Organic Chemistry I: Biological Emphasis	3	CH E 3113	Momentum, Heat and Mass Transfer I	3
	BIOL 1124	Intro Biol: Molecule/Cell/Phys	4	CHEM 3152	Organic Chemistry Laboratory: Biological Emphasis	2
				CHEM 3423	Physical Chemistry I	3
CREDIT HOURS		18	CREDIT HOURS		16	
JUNIOR	CH E 3123	Momentum, Heat and Mass Transfer II	3	CH E 3333	Separation Processes	3
	CH E 3473	Chemical Engineering Thermodynamics	3	CH E 3432	Unit Operations Laboratory	2
	CH E 3723	Numerical Methods for Engineering Computation	3	CH E 4473	Kinetics	3
	HIST 1483 or HIST 1493	United States to 1865 ( Core IV ) or United States, 1865 to the Present	3		Bioengineering Core Electives <sup>5</sup>	3
		Approved Elective, Social Science (Core III) <sup>4</sup>	3		Approved Elective, Western Culture (Core IV) <sup>4</sup>	3
	CREDIT HOURS		15	CREDIT HOURS		14
SENIOR		Technical Elective I <sup>6</sup>	3	CH E 3313	Structure and Properties of Materials	3
	CH E 4153	Process Dynamics and Control	3	CH E 4273	Advanced Process Design	3
	CH E 4253	Process Design & Safety	3		Approved Elective, Artistic Forms (Core IV) <sup>4</sup>	3
	CH E 4262	Chemical Engineering Design Laboratory	2		Approved Elective, World Culture (Core IV) <sup>4</sup>	3
	P SC 1113	American Federal Government ( Core III )	3		Technical Elective III <sup>7</sup>	3
		Technical Elective II <sup>6</sup>	3			
	CREDIT HOURS		17	CREDIT HOURS		15

<sup>1</sup> CHEM 1315 can be substituted with CHEM 1335 or CHEM 1425 (H) (Fall only). CHEM 1435 can be substituted with CHEM 1415.

<sup>2</sup> MATH 1823, MATH 2423, MATH 2433, and MATH 2443 sequence can be substituted for MATH 1914, MATH 2924, and MATH 2934.

<sup>3</sup> Transfer students will need to meet the requirements of the first-year experience course as well as the engineering transfer course. Please see your advisor for your specific enrollment.

<sup>4</sup> To be chosen from the University-Wide General Education Approved Course List. Three of these hours must be upper-division (3000-4000). See list in the Class Schedule.

<sup>5</sup> Choose between CH E 4203 or CH E 5243.

<sup>6</sup> Choose between CHEM 3653, BIOL 3813, BIOL 3103, BIOL 3113, BIOL 3333, BIOL 4843, CH E 5243, CH E 4203, CH E 5293, CH E 5373, and CHEM 3753.

<sup>7</sup> Technical Elective III must be related to bioengineering.