

**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 2023 through Spring 2024</b>

General Requirements	
Minimum Total Credit Hours .....	127
<b>Minimum Retention/Graduation Grade Point Averages:</b>	
Overall - Combined and OU .....	2.00
Major - Combined and OU .....	2.00
Curriculum - Combined and OU .....	2.00

Program
<b>Chemical Engineering - Sustainability Option</b>
<b>B165</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 (excluding HIST 1483 and HIST 1493) <sup>4</sup>		3
<i>World Culture</i>		
Choose one course <sup>4</sup>		3
<b>Core Area V: First-Year Experience</b>		
Choose one course <sup>4</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. See list in the Class Schedule. Three of these hours must be upper-division (3000-4000) and have significant content related to Sustainability chosen from the approved list of courses maintained by the department.

### 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 3113	Momentum, Heat and Mass Transfer I	3
CH E 2003	Chemical Engineering Computing/Statistics	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 4153	Process Dynamics and Control	3
CH E 4253	Process Design & Safety	3
CH E 4262	Chemical Engineering Design Laboratory	2
CH E 4273	Advanced Process Design	3
CH E 3313	Structure and Properties of Materials	3
CH E 4323	Chemical Process Sustainability	3
<b>Total Credit Hours</b>		<b>43</b>

### MAJOR SUPPORT REQUIREMENTS

Code	Title	Credit Hours
<b>Math and Science</b>		
CHEM 1435	General Chemistry II: Signature Course	5
CHEM 3064	Organic Chemistry I	4
CHEM 3164	Organic Chemistry II	4
CHEM 3423	Physical Chemistry I	3
CHEM 3421	Physical Chemistry Laboratory	1
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>		
Sustainability Technical Elective I <sup>1</sup>		3
Sustainability Technical Elective II <sup>1</sup>		3
<b>Additional College Requirements</b>		
ENGR 1411	Pathways to Engineering Thinking <sup>2</sup>	1
ENGR 2002	Professional Development	2
ENGR 2411	Applied Engineering Statics	1
ENGR 2431	Electrical Circuits	1
ENGR 3431	Electromechanical Systems	1
<b>Total Credit Hours</b>		<b>44</b>

<sup>1</sup>Chosen from a list of approved courses maintained by the department. One elective must have a significant chemistry content and may be chosen from, but not limited to, the following: CH E 5163, CH E 5223, CH E 5453, CH E 5533, and CH E 5133.

<sup>2</sup>Engineering transfer students may take ENGR 3511 in place of ENGR 1411.

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

### SUGGESTED SEMESTER PLAN OF STUDY

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**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.**

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 1411	Pathways to Engineering Thinking <sup>3</sup>	1	PHYS 2514	General Physics for Engineering and Science Majors ( Core II )	4
	Approved Elective: First-Year Experience (Core V) <sup>4</sup>		3			
<b>CREDIT HOURS</b>		<b>16</b>	<b>CREDIT HOURS</b>		<b>16</b>	
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	CH E 2003	Chemical Engineering Computing/Statistics	3
	CH E 2033	Chemical Engineering Fundamentals	3	CH E 3113	Momentum, Heat and Mass Transfer I	3
	CHEM 3064	Organic Chemistry I	4	CHEM 3164	Organic Chemistry II	4
				CHEM 3423	Physical Chemistry I	3
<b>CREDIT HOURS</b>		<b>15</b>	<b>CREDIT HOURS</b>		<b>16</b>	
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
	CHEM 3421	Physical Chemistry Laboratory	1	HIST 1483 or HIST 1493	United States to 1865 ( Core IV ) or United States, 1865 to the Present	3
	ENGR 2002	Professional Development	2	Approved Elective, Western Culture (Core IV) <sup>4</sup>		3
	Approved Elective, Social Science (Core III) <sup>4</sup>		3	Approved Elective, Artistic Forms (Core IV) <sup>4</sup>		3
<b>CREDIT HOURS</b>		<b>15</b>	<b>CREDIT HOURS</b>		<b>17</b>	
SENIOR	P SC 1113	American Federal Government	3	CH E 3313	Structure and Properties of Materials	3
	CH E 4153	Process Dynamics and Control	3	CH E 4323	Chemical Process Sustainability	3
	CH E 4253	Process Design & Safety	3	CH E 4273	Advanced Process Design	3
	CH E 4262	Chemical Engineering Design Laboratory	2	ENGR 2411	Applied Engineering Statics	1
	ENGR 2431	Electrical Circuits <sup>6</sup>	1	Approved Elective, World Culture (Core IV) <sup>4</sup>		3
	ENGR 3431	Electromechanical Systems <sup>6</sup>	1	Sustainability Technical Elective II <sup>6</sup>		3
	Sustainability Technical Elective <sup>6</sup>		3			
<b>CREDIT HOURS</b>		<b>16</b>	<b>CREDIT HOURS</b>		<b>16</b>	

<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> Engineering transfer students may take ENGR 3511 in place of ENGR 1411.

<sup>4</sup> To be chosen from the University-Wide General Education Approved Course List. See list in the Class Schedule. Three of these hours must be upper-division (3000-4000) and have significant content related to Sustainability chosen from the approved list of courses maintained by the School of Chemical, Biological, and Materials Engineering.

<sup>5</sup> It is recommended that ENGR 2431 and ENGR 3431 be taken in the same semester. The courses are offered in sequential five-week blocks during the semester.

<sup>6</sup> Sustainability Technical Electives must have significant content related to sustainability, renewable energy and materials, greenhouse gas reductions, or related topics chosen from a list of approved courses maintained by the School of Chemical, Biological, and Materials Engineering. At least one Sustainability elective must have a significant chemistry content and may be chosen from, but not limited to, the following: CH E 5163, CH E 5223, CH E 5453, CH E 5533, and CH E 5133.