

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 Summer 2022 through Spring 2023

General Requirements	
Minimum Total Credit Hours	128
Minimum Retention/Graduation Grade Point Averages:	
Overall - Combined and OU	2.00
Major - Combined and OU	2.00
Curriculum - Combined and OU	2.00

Program
Chemical Engineering - Bioengineering Option
B164
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
Core Area I: Symbolic and Oral Communication		
<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) ^{1,2}	4
Core Area II: Natural Science (including one laboratory)		
PHYS 2514	General Physics for Engineering and Science Majors (Core II) ²	4
CHEM 1315	General Chemistry (Core II-Lab) ^{2,3}	5
Core Area III: Social Science		
P SC 1113	American Federal Government	3
Choose one course ⁴		3
Core Area IV: Arts & Humanities		
<i>Artistic Forms</i>		
Choose one course ⁴		3
<i>Western Culture</i>		
HIST 1483	United States to 1865	3
or HIST 1493	United States, 1865 to the Present	
Choose one course ⁴		3
<i>World Culture</i>		
Choose one course ⁴		3
Core Area V: First-Year Experience		
Choose one course ⁴		3
Total Credit Hours		40-50

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

²Major support requirements that also satisfy University General Education requirements.

³CHEM 1315 can be substituted with CHEM 1335 or CHEM 1425.

⁴To 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.

FREE ELECTIVES

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

ACCREDITED BY THE ENGINEERING ACCREDITATION COMMISSION OF ABET, <https://www.abet.org>

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
Required Courses		
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
Total Credit Hours		40

MAJOR SUPPORT REQUIREMENTS

Code	Title	Credit Hours
Math and Science		
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 3153	Organic Chemistry II: Biological Emphasis	3
CHEM 3152	Organic Chemistry Laboratory: Biological Emphasis	2
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
Technical Electives		
Technical Elective I ¹		3
Technical Elective II ¹		3
Bioengineering Core Electives		
CH E 4203	Bioengineering Principles	
or CH E 5243	Biochemical Engineering	
Additional College Requirements		
ENGR 1411	Freshman Engineering Experience ²	1
ENGR 2002	Professional Development	2
ENGR 2411	Applied Engineering Statics	1
ENGR 2431	Electrical Circuits	1
ENGR 3431	Electromechanical Systems	1
Total Credit Hours		51

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

²Engineering 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-bioengineering-bachelor-science/>).

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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. (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) ¹	5	CHEM 1435	General Chemistry II: Signature Course (Core II-Lab) ¹	5
	MATH 1914	Differential and Integral Calculus I (Core I) ²	4	MATH 2924	Differential and Integral Calculus II ²	4
	ENGR 1411	Freshman Engineering Experience ³	1	PHYS 2514	General Physics for Engineering and Science Majors (Core II)	4
	Approved Elective: First-Year Experience (Core V) ⁴		3			
CREDIT HOURS		16	CREDIT HOURS		16	
SOPHOMORE	MATH 2934	Differential and Integral Calculus III ²	4	MATH 3113	Introduction to Ordinary Differential Equations	3
	PHYS 2524	General Physics for Engineering and Science Majors	4	ENGR 2002	Professional Development	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	CHEM 3421	Physical Chemistry Laboratory	1	CH E 3333	Separation Processes	3
	CH E 3123	Momentum, Heat and Mass Transfer II	3	CH E 3432	Unit Operations Laboratory	2
	CH E 3473	Chemical Engineering Thermodynamics	3	CH E 4473	Kinetics	3
	CH E 3723	Numerical Methods for Engineering Computation	3	Bioengineering Core Electives ⁶		3
	HIST 1483 or HIST 1493	United States to 1865 (Core IV) or United States, 1865 to the Present	3	Approved Elective, Western Culture (Core IV) ⁴		3
	Approved Elective, Social Science (Core III) ⁴		3			
CREDIT HOURS		16	CREDIT HOURS		14	
SENIOR	Technical Elective I ⁷		3	Technical Elective II ⁷		3
	CH E 4153	Process Dynamics and Control	3	ENGR 2411	Applied Engineering Statics ⁵	1
	CH E 4253	Process Design & Safety	3	CH E 3313	Structure and Properties of Materials	3
	CH E 4262	Chemical Engineering Design Laboratory	2	CH E 4273	Advanced Process Design	3
	ENGR 2431	Electrical Circuits ⁵	1	Approved Elective, Artistic Forms (Core IV) ⁴		3
	ENGR 3431	Electromechanical Systems ⁵	1	Approved Elective, World Culture (Core IV) ⁴		3
	P SC 1113	American Federal Government (Core III)	3			
CREDIT HOURS		16	CREDIT HOURS		16	

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

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

³ Engineering transfer students may take ENGR 3511 in place of ENGR 1411.

⁴ 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.

⁵ 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.

⁶ Choose between CH E 4203 or CH E 5243.

⁷ Choose between CHEM 3653, MBIO 3813, BIOL 3103, BIOL 3113, BIOL 3333, BIOL 4843, CH E 5243, CH E 4203, CH E 5293, CH E 5373, CHEM 3753.