

# 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 .....	132
<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>Industrial and Systems Engineering - Pre-Medicine Option</b>
B528
Bachelor of Science

OU encourages students to complete at least 33 hours of applicable coursework each year to have the opportunity to graduate in 4 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</sup>	5
or CHEM 1335	General Chemistry I: Signature Course	
<b>Core Area III: Social Science</b>		
P SC 1113	American Federal Government	3
Choose one course <sup>3</sup>		3
<b>Core Area IV: Arts &amp; Humanities</b>		
<i>Artistic Forms</i>		
Choose one course <sup>3</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>3</sup>		3
<i>World Culture</i>		
Choose one course <sup>3</sup>		3
<b>Core Area V: First-Year Experience</b>		
ENGR 1413	Pathways to Engineering Thinking (Core V-FYE) <sup>4</sup>	3
<b>Total Credit Hours</b>		<b>40-50</b>

- 1 MATH 1823, MATH 2423, MATH 2433, and MATH 2443 sequence can be substituted for MATH 1914, MATH 2924, and MATH 2934.
- 2 Major support requirements that also satisfy University General Education requirements.
- 3 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.
- 4 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 Industrial and Systems Engineering accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the General Criteria and the Industrial Engineering and Similarly Named Engineering Programs 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>		
ISE 2823	Enterprise Engineering	3
ISE 2311	Computer Aided Design and Graphics Laboratory for Industrial Engineers	1
ISE 2303	Design and Manufacturing Process	3
ISE 3293	Applied Engineering Statistics	3
ISE 3304	Design and Manufacturing II	4
ISE 4302	Systems Thinking	2
ISE 4113	Spreadsheet Dec Support Sys	3
ISE 4553	Data-Driven Decision Making I	3
ISE 4623	Deterministic Systems Models	3
ISE 4223	Fundamentals of Engineering Economy	3
ISE 4563	Quality & Reliability Engineering	3
ISE 4633	Probabilistic Systems Models	3
ISE 4804	Ergonomics in Systems Design	4
ISE 4333	Production Systems/Operations	3
ISE 4383	Systems Evaluation	3
ISE 4663	Systems Analysis Using Simulation	3
ISE 4853	Data-Driven Decision Making II	3
ISE 4393	Capstone Design Project	3
<b>Total Credit Hours</b>		<b>53</b>

## MAJOR SUPPORT REQUIREMENTS

Code	Title	Credit Hours
<b>Math and Science</b>		
CHEM 1415	General Chemistry (Continued)	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
MATH 2924	Differential and Integral Calculus II	4
MATH 2934	Differential and Integral Calculus III	4
BIOL 1124	Intro Biol: Molecule/Cell/Phys	4
Approved Biology Elective <sup>1</sup>		3
<b>Additional College Requirements</b>		
C S 1323	Introduction to Computer Programming for Programmers	3
or C S 1313	Programming for Non-Majors with C	
ENGR 2002	Professional Responsibilities and Skills of Engineers and Scientists	2
CEES 2113	Statics	3
CEES 2153	Mechanics of Materials	3
<b>Total Credit Hours</b>		<b>39</b>

- 1 To be chosen from the approved list of biology electives consisting of BIOL 3113, BIOL 3333, or BIOL 4843.

More information in the catalog: (<http://ou-public.courseleaf.com/gallogly-engineering/industrial-systems-engineering/ise-pre-medicine-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.

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 language at the University will have an additional 6-10 hours of coursework.

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 1415	General Chemistry (Continued) ( 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
				C S 1323 or C S 1313	Introduction to Computer Programming for Programmers or Programming for Non-Majors with C	3
	CREDIT HOURS		15	CREDIT HOURS		19
SOPHOMORE	MATH 2934	Differential and Integral Calculus III <sup>2</sup>	4	CHEM 3153	Organic Chemistry II: Biological Emphasis	3
	CEES 2113	Statics	3	CHEM 3152	Organic Chemistry Laboratory: Biological Emphasis	2
	ISE 2823	Enterprise Engineering	3	CEES 2153	Mechanics of Materials	3
	CHEM 3053	Organic Chemistry I: Biological Emphasis	3	ISE 2303	Design and Manufacturing Process	3
	ENGR 2002	Professional Responsibilities and Skills of Engineers and Scientists	2	ISE 2311	Computer Aided Design and Graphics Laboratory for Industrial Engineers	1
				ISE 3293	Applied Engineering Statistics	3
JUNIOR	CREDIT HOURS		15	CREDIT HOURS		15
	ISE 3304	Design and Manufacturing II	4	ISE 4223	Fundamentals of Engineering Economy	3
	ISE 4113	Spreadsheet Dec Support Sys	3	ISE 4302	Systems Thinking	2
	ISE 4553	Data-Driven Decision Making I	3	ISE 4563	Quality & Reliability Engineering	3
	ISE 4623	Deterministic Systems Models	3	ISE 4633	Probabilistic Systems Models	3
	BIOL 1124	Intro Biol: Molecule/Cell/Phys	4	ISE 4804	Ergonomics in Systems Design	4
SENIOR					Approved Biology Elective <sup>4</sup>	3
	CREDIT HOURS		17	CREDIT HOURS		18
	ISE 4333	Production Systems/Operations	3	HIST 1483 or HIST 1493	United States to 1865 ( Core IV ) or United States, 1865 to the Present	3
	ISE 4383	Systems Evaluation	3	ISE 4393	Capstone Design Project	3
	ISE 4663	Systems Analysis Using Simulation	3		Approved Elective: Artistic Forms (Core IV) <sup>5</sup>	3
	ISE 4853	Data-Driven Decision Making II	3		Approved Elective: Social Science (Core III) <sup>5</sup>	3
SENIOR	P SC 1113	American Federal Government ( Core III )	3		Approved Elective: Western Culture (Core IV) <sup>5</sup>	3
		Approved Elective: World Culture (Core IV) <sup>5</sup>	3			
	CREDIT HOURS		18	CREDIT HOURS		15

<sup>1</sup> CHEM 1315 and CHEM 1415 can be substituted with CHEM 1335 (Fall only) and CHEM 1435 (Spring only), respectively.

<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 approved list of biology electives consisting of BIOL 3113, BIOL 3333, or BIOL 4843.

<sup>5</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.

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.

Admission requirements vary with medical schools. Students should consult with advisors in the Pre-Medical Professions Advising Office each semester (Cate 1, Room 416, or call 405-325-2457) as well as the Williams Student Services Center to ensure completion of the necessary prerequisite courses. This may include additional coursework not required for this specific undergraduate degree program in Industrial and Systems Engineering. Note: Most medical schools require PHYS 1311 and PHYS 1321.