

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 2023 through Spring 2024

General Requirements	
Minimum Total Credit Hours	132
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
Mechanical Engineering - Premedical Option
B676
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)

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	5
or CHEM 1335	General Chemistry I: Signature Course	
Core Area III: Social Science		
P SC 1113	American Federal Government	3
Choose one course ³		3
Core Area IV: Arts & Humanities		
<i>Artistic Forms</i>		
Choose one course ³		3
<i>Western Culture</i>		
HIST 1483	United States to 1865	3
or HIST 1493	United States, 1865 to the Present	
COMM 3513	Intercultural Communication (or approved substitute Core IV-Western Culture) ³	3
<i>World Culture</i>		
ANTH 4623	Approaches to Cross-Cultural Human Problems (or approved substitute Core IV-World Culture) ³	3
Core Area V: First-Year Experience		
Choose one course ³		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.

³To be chosen from the University-Wide General Education Approved Course List. Three of these hours must be upper-division (3000-4000).

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 Mechanical Engineering accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the General Criteria and the Mechanical and Similarly Named Engineering Programs Program Criteria.

In order to progress into 2nd year courses in AME, students must successfully complete (grade C or better) MATH 1914; MATH 2924; PHYS 2514 and CHEM 1315 with 3.0 Combined Retention GPA, and possess a minimum 3.0 Combined Retention GPA in 24 or more credit hours.

MAJOR REQUIREMENTS

Code	Title	Credit Hours
Required Courses		
AME 2113	Statics	3
AME 2213	Thermodynamics	3
AME 2402	Engineering Computing	2
AME 2303	Materials, Design and Manufacturing Processes	3
AME 2533	Dynamics	3
AME 3112	Solid Mechanics Lab	2
AME 3143	Solid Mechanics	3
AME 3153	Fluid Mechanics	3
AME 3723	Numerical Methods For Engineering Computation	3
AME 3103	Interactive Engineering Design Simulation	3
AME 3122	Heat Transfer and Fluid Mechanics Lab	2
AME 3173	Heat Transfer	3
AME 3353	Design of Mechanical Components	3
AME 3363	Design of Thermal-Fluid Systems	3
AME 4163	Principles of Engineering Design	3
AME 4553	Design Practicum	3
Total Credit Hours		45

MAJOR SUPPORT REQUIREMENTS

Code	Title	Credit Hours
Math and Science		
BIOL 1124	Intro Biol: Molecule/Cell/Phys	4
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
MATH 3113	Introduction to Ordinary Differential Equations	3
PHYS 2524	General Physics for Engineering and Science Majors	4
PHYS 3223	Modern Physics for Engineers	3
Biology Elective		
Choose one approved Biology elective ¹		3
Engineering Science Elective		
Choose a 3 hour Engineering science elective from the list of approved courses maintained by the department		3
Additional College Requirements		
ENGR 1411	Pathways to Engineering Thinking ²	1
ENGR 2002	Professional Development	2
ENGR 2431	Electrical Circuits	1
ENGR 2531	Electrical Circuits II	1
ENGR 3431	Electromechanical Systems	1
Total Credit Hours		47

¹Biology elective to be chosen from BIOL 3113, BIOL 3333, or BIOL 4843.

²Engineering transfer students may take ENGR 3511 in place of ENGR 1411.

More information in the catalog: (<http://ou-public.courseleaf.com/gallogly-engineering/aerospace-mechanical-engineering/mechanical-engineering-premedical-option-bachelor-science/>).

SUGGESTED SEMESTER PLAN OF STUDY

Bachelor of Science in Mechanical Engineering accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the General Criteria and the Mechanical 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. AME courses are sequential and usually offered only in the semester shown; note prerequisites.

- **DEPARTMENTAL PROGRESSION REQUIREMENTS: In order to progress into 2nd year courses in AME, students must successfully complete (grade C or better) MATH 1914; MATH 2924; PHYS 2514 and CHEM 1315 with 3.0 Combined Retention GPA, and possess a minimum 3.0 Combined Retention GPA in 24 or more credit hours. AP credit is acceptable for any of these required 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 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.

Students who wish to take the MCAT in their junior year are encouraged to take the required biology elective and the organic chemistry during their junior year. Some may also wish to take an additional biology elective (not required in the curriculum).

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 1415	General Chemistry (Continued) (Core II-Lab) ^{1,4}	5
	MATH 1914	Differential and Integral Calculus I (Core I) ²	4	MATH 2924	Differential and Integral Calculus II ²	4
	ENGR 1411	Pathways to Engineering Thinking ³	1	PHYS 2514	General Physics for Engineering and Science Majors (Core II)	4
		Advised Elective: First-Year Experience (Core V) ⁶	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	AME 2303	Materials, Design and Manufacturing Processes	3
	CHEM 3053	Organic Chemistry I: Biological Emphasis ⁴	3	AME 2533	Dynamics	3
	AME 2113	Statics	3	ENGR 2431	Electrical Circuits	1
	AME 2213	Thermodynamics	3	ENGR 2531	Electrical Circuits II	1
	AME 2402	Engineering Computing	2	ENGR 3431	Electromechanical Systems	1
				CHEM 3153	Organic Chemistry II: Biological Emphasis	3
			CHEM 3152	Organic Chemistry Laboratory: Biological Emphasis	2	
	CREDIT HOURS		19	CREDIT HOURS		17
JUNIOR	BIOL 1124	Intro Biol: Molecule/Cell/Phys	4		BIOL Elective ⁵	3
	AME 3112	Solid Mechanics Lab	2	AME 3103	Interactive Engineering Design Simulation	3
	AME 3143	Solid Mechanics	3	AME 3122	Heat Transfer and Fluid Mechanics Lab	2
	AME 3153	Fluid Mechanics	3	AME 3173	Heat Transfer	3
	AME 3723	Numerical Methods For Engineering Computation	3	AME 3353	Design of Mechanical Components	3
	ENGR 2002	Professional Development	2	HIST 1483 or HIST 1493	United States to 1865 (Core IV) or United States, 1865 to the Present	3
	CREDIT HOURS		17	CREDIT HOURS		17
SENIOR	PHYS 3223	Modern Physics for Engineers	3	AME 4553	Design Practicum	3
	P SC 1113	American Federal Government (Core III)	3	COMM 3513	Intercultural Communication (or an advisor approved substitution) (Western Culture - Core IV) ⁶	3
	AME 3363	Design of Thermal-Fluid Systems	3	ANTH 4623	Approaches to Cross-Cultural Human Problems (or an advisor-approved substitution) (World Culture - Core IV) ⁶	3
	AME 4163	Principles of Engineering Design	3		Approved Engineering Science Elective ⁷	3
		Approved Elective: Social Science (Core III) ⁶	3		Approved Elective: Artistic Forms (Core IV) ⁶	3
	CREDIT HOURS		15	CREDIT HOURS		15

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

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 Pre-med students are required to consult the OU Pre-Med Advisor, Cate 1, Room 416, or call (405) 325-2457, and their Mechanical Engineering advisor each semester prior to enrolling. NOTE: Most medical schools also require PHYS 1311 and PHYS 1321.

⁵ Biology elective to be chosen from BIOL 3113, BIOL 3333, or BIOL 4843.

⁶ To be chosen from the University-Wide General Education Approved Course List. Three of these hours must be upper-division (3000-4000).

⁷ A list of Engineering Science electives can be found at: <https://www.ou.edu/coe/ame/undergraduate/ame-current>