REQUIREMENTS FOR THE BACHELOR OF SCIENCE/MASTER 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	**152-158**
Minimum Retention/Graduation Grade Point Averages:	
Overall - Combined and OU	**3.25**
Major - Combined and OU	**3.25**
Curriculum - Combined and OU	**3.25**

Program
Aerospace Engineering
A010/F010
Bachelor of Science/Master of Science

OU encourages students to complete at least 31 hours of applicable coursework each year to have the opportunity to graduate in 5 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		
English Composition		
ENGL 1113	Principles of English Composition	3
ENGL 1213	Principles of English Composition	3
or EXPO 1213	Expository Writing	
Language (0-10 hours in the same language)		
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)		
Mathematics		
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		
Artistic Forms		
Choose one course [3]		3
Western Culture		
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
World Culture		
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**

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).

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 Aerospace Engineering accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org**, under the General Criteria and the Aerospace and Similarly Named 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 2223	Introduction to Aerospace Engineering	3
AME 2303	Materials, Design and Manufacturing Processes	3
AME 2533	Dynamics	3
AME 2623	Circuits and Sensors	3
AME 3112	Solid Mechanics Lab	2
AME 3143	Solid Mechanics	3
AME 3253	Aerodynamics	3
AME 3272	Windtunnel Laboratory	2
AME 4383	Control Systems	3
AME 3103	Interactive Engineering Design Simulation	3
AME 3333	Flight Mechanics	3
AME 3523	Aerospace Structural Analysis	3
AME 3623	Embedded Real-Time Systems	3
AME 4243	Aerospace Propulsion Systems	3
AME 4273	Aerospace Systems Design I	3
AME 5493	Space Sciences and Astrodynamics [1]	3
AME 4513	Flight Controls	3
AME 4373	Aerospace Systems Design II	3
AME Electives		
6 hours of graduate level AME courses from a list of approved courses maintained by the department [1]		6
Experimental Elective		
Choose a two hour approved experimental elective [2]		2
Total Credit Hours		**66**

1 Shared courses between the BS and MS degrees.
2 AME 4802 is recommended for the experimental elective.

MAJOR SUPPORT REQUIREMENTS

Code	Title	Credit Hours
Math and Science		
MATH 2924	Differential and Integral Calculus II	4
MATH 2934	Differential and Integral Calculus III	4
MATH 3413	Physical Mathematics I	3
MATH 3401	Numerical Methods With Matlab	1
PHYS 2524	General Physics for Engineering and Science Majors	4
Additional College Requirements		
ENGR 1411	Pathways to Engineering Thinking [1]	1
ENGR 2002	Professional Development	2
C S 1313	Programming for Non-Majors with C	3
Total Credit Hours		**22**

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

GRADUATE REQUIREMENTS

Up to 6 hours of graduate level AME courses that satisfy MS in aerospace engineering requirements can be shared between BS and MS degrees.

THESIS OPTION

Code	Title	Credit Hours
Course Requirements		
Choose 24 hours of graduate level coursework from the following:		24
Choose at least 3 hours of graduate-level coursework in mathematics or advanced engineering analysis		
Choose at least 12 hours of AME courses at the 5000 level or higher [1]		
Choose up to 9 hours of approved graduate-level courses [2]		
Thesis		
AME 5980	Research for Master's Thesis	6
Total Credit Hours		**30**

1 No more than 3 hours in Special Projects, Guided Individual Studies, or other non-competitively graded enrollments.

2 Approved graduate-level courses chosen from other fields of engineering, the physical sciences, and mathematics; or AME courses, including G4000-level courses not required for the B.S. degree in the major field. Thesis students who elect a 2-hour laboratory course may include 1 additional hour of Special Projects of Guided Individual Studies in their program.

NON-THESIS OPTION

Code	Title	Credit Hours
Course Requirements		
Choose 36 hours of graduate level coursework from the following:		36
Choose at least 3 hours of graduate-level coursework in mathematics or advanced engineering analysis		
Choose at least 18 hours of AME courses at the 5000 level or higher [1]		
Choose up to 12 hours of approved graduate-level courses [2]		
Total Credit Hours		**36**

1 AME hours may include up to 3 hours Special Projects and up to 3 hours Guided Independent Studies. (Students who elect a 2-hour laboratory course may include 1 additional hour of either of these individual instruction enrollments.)

2 Approved graduate-level courses chosen from other fields of engineering, the physical sciences, and mathematics; or AME courses, including G4000-level courses not required for the B.S. degree in the major field. For non-thesis students, the 12 hours may include up to 3 hours of additional enrollment in non-competitively graded courses, and up to 6 hours of G4000-level AME courses not required for the B.S. degree in the major field.

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

SUGGESTED SEMESTER PLAN OF STUDY

Bachelor of Science in Aerospace Engineering accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org**, under the General Criteria and the Aerospace 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. 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.**

Approval for admission to the accelerated BS/MS program must be initiated at the beginning of the second semester of the junior year. Students may enter the accelerated program based on the undergraduate degree pattern offered in the year they first enrolled in the Oklahoma State System of Higher Education or later. Students are eligible for graduate status upon graduation with the Bachelor of Science in Aerospace Engineering.

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.

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	MATH 2924	Differential and Integral Calculus II [2]	4
	MATH 1914	Differential and Integral Calculus I (Core I) [2]	4	PHYS 2514	General Physics for Engineering and Science Majors (Core II)	4
	HIST 1483 or HIST 1493	United States to 1865 (Core IV) or United States, 1865 to the Present	3	C S 1313	Programming for Non-Majors with C	3
	ENGR 1411	Pathways to Engineering Thinking [3]	1		Approved Elective: First-Year Experience (Core V) [4]	3
		CREDIT HOURS	**16**		**CREDIT HOURS**	**17**
SOPHOMORE	MATH 2934	Differential and Integral Calculus III [2]	4	MATH 3413	Physical Mathematics I	3
	PHYS 2524	General Physics for Engineering and Science Majors	4	MATH 3401	Numerical Methods With Matlab	1
	AME 2113	Statics	3	AME 2303	Materials, Design and Manufacturing Processes	3
	AME 2213	Thermodynamics	3	AME 2533	Dynamics	3
	AME 2223	Introduction to Aerospace Engineering	3	AME 2623	Circuits and Sensors	3
					Approved Elective: Artistic Forms (Core IV) [4]	3
		CREDIT HOURS	**17**		**CREDIT HOURS**	**16**
JUNIOR	AME 3112	Solid Mechanics Lab	2	AME 3103	Interactive Engineering Design Simulation	3
	AME 3143	Solid Mechanics	3	AME 3333	Flight Mechanics	3
	AME 3253	Aerodynamics	3	AME 3523	Aerospace Structural Analysis	3
	AME 3272	Windtunnel Laboratory	2	AME 3623	Embedded Real-Time Systems	3
	AME 4383	Control Systems	3	P SC 1113	American Federal Government (Core III)	3
	ENGR 2002	Professional Development	2		Approved Experimental Elective [5]	2
		CREDIT HOURS	**15**		**CREDIT HOURS**	**17**
SENIOR	AME 4243	Aerospace Propulsion Systems	3	AME 4373	Aerospace Systems Design II	3
	AME 4273	Aerospace Systems Design I	3	COMM 3513	Intercultural Communication (or an advisor-approved substitution) (Western Culture - Core IV) [4]	3
	AME 5493	Space Sciences and Astrodynamics [6]	3	ANTH 4623	Approaches to Cross-Cultural Human Problems (or an advisor-approved substitution) (World Culture - Core IV) [4]	3
	AME 4513	Flight Controls	3		Approved Elective: Social Science (Core III) [4]	3
		AME Graduate Elective [6, 7]	3		AME Graduate Elective [6, 7]	3
		CREDIT HOURS	**15**		**CREDIT HOURS**	**15**
FOURTH YEAR	AME 5990	Special Projects (Non-thesis students only) [8]	0-3			
		CREDIT HOURS	**0-3**			
FIFTH YEAR	AME 5573	Advanced Engineering Analysis I (or MATH Elective)	3		Choose one of the following: [8]	3-4
		Choose one of the following: [8]	2-3	AME 5980	Research for Master's Thesis (Thesis Option)	
	AME 5980	Research for Master's Thesis (Thesis Option)			Graduate-level Elective (Non-Thesis Option) [7]	
		Graduate-level Elective (Non-Thesis Option) [7]			AME Graduate Elective [7, 8]	3
		AME Graduate Elective [7]	3		AME Graduate Elective [7]	3
		AME Graduate Elective [7]	3		AME Graduate Elective [7]	3
		CREDIT HOURS	**12**		**CREDIT HOURS**	**12-13**

1 CHEM 1315 can be substituted with CHEM 1335 (Fall only).

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 online.

5 It is recommended that a student take AME 4802 for the experimental elective.

6 Courses applied to both BS and MS degrees.

7 Fourth and fifth year graduate electives must satisfy MS in aerospace engineering requirements.

8 Dependent upon whether a student chooses the thesis or non-thesis option. Non-thesis option additionally requires: AME 5990 (3 hrs.) to be taken in the Summer between the Senior and the Fifth Year, and **Comprehensive Exam** to be taken in the last semester of study.

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.