

# Aerospace Engineering, BSAE

To obtain a Bachelor of Science degree in Aerospace Engineering, students are required to complete the general education requirements for engineering majors and the following courses:

Code	Title	Semester Hours
<b>Freshman Composition</b>		<b>3-6</b>
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
<b>Humanities and Fine Arts</b>		<b>9</b>
Fine Art: Choose one		3
ARH 100	ARH SUR: ANCIENT-MEDIEVAL	
ARH 101	ARH SUR: RENAISSANCE-MODERN	
ARH 103	ARH SUR: WORLD ART	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one or two <sup>1</sup>		3-6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 241	LITERATURE WITHOUT BORDERS	
EH 242	MYTHOLOGY	
EH 243	PROTEST LITERATURE	
EH 244	HEROES &/OR MONSTERS	
EH 245	LOVE &/OR ROMANCE	
EH 246	SPECULATIVE REALITIES	
Humanities: Choose one		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any 100 or 200 level Foreign Language <sup>3</sup>		
WGS 200	INTRO WOMENS/GENDER/SEXLTU STU	
<b>Mathematics and Natural Sciences</b>		<b>12</b>
Mathematics		4
MA 171	CALCULUS A <sup>2</sup>	
Natural Sciences		8
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
<b>History and Social and Behavioral Sciences</b>		<b>9</b>
History: Choose one or two <sup>1</sup>		3-6
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Science: Choose one or two		3-6
AES 105	WORLD REGIONAL GEOGRAPHY	
AES 110	PRINCIPLES OF HUMAN GEOGRAPHY	
PY 101	GENERAL PSYCHOLOGY I	

SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 206	MARRIAGE AND FAMILY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
GS 200	GLOBAL SYSTEMS AND CULTURES	
<b>Code</b>	<b>Title</b>	<b>Semester Hours</b>
<b>Additional Mathematics and Science</b>		
MA 172	CALCULUS B	4
MA 201	CALCULUS C	4
MA 238	APPL DIFFERENTIAL EQUATIONS	3
MA 244	INTRO TO LINEAR ALGEBRA	3
PH 112	GEN PHYSICS W/CALC II	3
PH 115	GENERAL PHYSICS LAB II	1
Select one of the following science electives:		3-4
CH 123	GENERAL CHEMISTRY II	
PH 113	GEN PHYSICS W/CALC III	
BYS 119	PRINCIPLES OF BIOLOGY	
Any 300 or 400 level Mathematics course		
<b>Engineering</b>		
FYE 101E	CHARGER SUCCESS - ENGINEERING	1
EGR 101	INTRO COMPUTING ENGINEERS	3
EGR 299	ENGINEERING MENTORING I	0
EGR 399	ENGINEERING MENTORING II	0
<b>Aerospace Engineering</b>		
MAE 200	PRINC AERONAUTICS & ASTRONAUTI	3
MAE 211	INTRO COMPUTATIONAL TOOLS	2
EE 213	ELECTRICAL CIRCUIT ANALYSIS I	3
MAE 271	STATICS	3
MAE 272	DYNAMICS	3
MAE 284 & 284L	NUMERICAL METHODS and NUMERICAL METHODS LAB	3
ISE 321	ENGINEERING ECONOMY	3
MAE 311	PRIN MEASUREMENT & INSTRUMEN	3
MAE 330 & MAE 331	FUNDAMENTALS AERODYNAMICS and AERODYNAMICS LAB	4
MAE 341	THERMODYNAMICS I	3
MAE 343	COMPRESSIBLE AERODYNAMICS	3
MAE 370 & MAE 375	MECHANICS OF MATERIALS and MECHANICS OF MATERIALS LAB	4
MAE 371	AEROSPACE STRUCTURES	3
MAE 440 or MAE 441	ROCKET PROPULSION I (or) AIRBREATHING PROPULSION	3
MAE 468	ELEMENTS OF SPACECRAFT DESIGN	3
MAE 471	ADV AEROSPACE STR & MTRLS	3
MAE 480	AIRCRAFT STABILITY & CONTROL	3
MAE 488	ANALY ENGINEERING SYSTEM	3
MAE 490	SENIOR DESIGN I	3
MAE 491	SENIOR DESIGN II	3

**Aerospace Technical Electives**

Select 6 semester hours from the MAE Approved Technical Electives List <sup>4</sup> 6

AE students may not take both MA 385 and ISE 390 for Technical Elective credit. AE students may not take MAE 310 for credit.

**Total Semester Hours** 128

- <sup>1</sup> Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)
- <sup>2</sup> Based on Math placement (<http://www.uah.edu/science/departments/math/undergraduate-students/placement/>), prerequisite (MA 112 and/or MA 113) Mathematics courses may be required.
- <sup>3</sup> For choices see the World Languages and Culture (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/foreign-languages-literatures/#coursestext>) department.
- <sup>4</sup> See approved list of MAE technical electives here (<https://www.uah.edu/eng/departments/undergraduate-engineering/cuee-current-students/students/>)

**Suggested Pathway for Aerospace Engineering****Year 1**

<b>Fall</b>		<b>Semester Hours</b>
MA 171	CALCULUS A	4
CH 121	GENERAL CHEMISTRY I	3
CH 125	GENERAL CHEMISTRY LAB I	1
EGR 101	INTRO COMPUTING ENGINEERS	3
EH 101	COLLEGE WRITING I	3
FYE 101E	CHARGER SUCCESS - ENGINEERING	1

**Term Semester Hours:** 15

**Spring**

MA 172	CALCULUS B	4
PH 111	GEN PHYSICS W/CALCULUS I	3
PH 114	GENERAL PHYSICS LAB I	1
EH 102	COLLEGE WRITING II	3
HSBS/HFA See Charger Foundations Areas II and IV		3
HSBS/HFA See Charger Foundations Areas II and IV		3

**Term Semester Hours:** 17

**Year 2**

<b>Fall</b>		
MA 201	CALCULUS C	4
MA 244	INTRO TO LINEAR ALGEBRA	3
PH 112	GEN PHYSICS W/CALC II	3
PH 115	GENERAL PHYSICS LAB II	1
MAE 271	STATICS	3
MAE 211	INTRO COMPUTATIONAL TOOLS	2
EGR 299	ENGINEERING MENTORING I	0

**Term Semester Hours:** 16

**Spring**

MA 238	APPL DIFFERENTIAL EQUATIONS	3
MAE 272	DYNAMICS	3
MAE 284 & 284L	NUMERICAL METHODS and NUMERICAL METHODS LAB	3
MAE 370 & MAE 375	MECHANICS OF MATERIALS and MECHANICS OF MATERIALS LAB	4
MAE 200	PRINC AERONAUTICS ASTRONAUTI	3

**Term Semester Hours:** 16

**Year 3****Fall**

MAE 341	THERMODYNAMICS I	3
EE 213	ELECTRICAL CIRCUIT ANALYSIS I	3
MAE 330 & MAE 331	FUNDAMENTALS AERODYNAMICS and AERODYNAMICS LAB	4
MAE 371	AEROSPACE STRUCTURES	3
EGR 399	ENGINEERING MENTORING II	0
Science Elective		3

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**Term Semester Hours: 16**

**Spring**

MAE 343	COMPRESSIBLE AERODYNAMICS	3
MAE 311 & 311L	PRIN MEASUREMENT & INSTRUMEN and PRINC MEASUREMENT & INSTR LAB	3
ISE 321	ENGINEERING ECONOMY	3
MAE 488	ANALY ENGINEERING SYSTEM	3
HSBS/HFA See Charger Foundations Areas II and IV		6

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**Term Semester Hours: 18**

**Year 4****Fall**

MAE 490	SENIOR DESIGN I	3
MAE 480	AIRCRAFT STABILITY CONTROL	3
MAE 440 or MAE 441	ROCKET PROPULSION I or AIRBREATHING PROPULSION	3
Technical Elective		3
HSBS/HFA See Charger Foundations Areas II and IV		3

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**Term Semester Hours: 15**

**Spring**

MAE 468	ELEMENTS OF SPACECRAFT DESIGN	3
MAE 471	ADV AEROSPACE STR MTRLS	3
MAE 491	SENIOR DESIGN II	3
Technical Elective		3
HSBS/HFA See Charger Foundations Areas II and IV		3

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**Term Semester Hours: 15**

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**Total Semester Hours: 128**