

# Department of Aerospace Engineering & Mechanics

BSAE Program – 124 credit hours

## FRESHMAN YEAR

**Fall**  
15 credit hours

placement	<b>MATH 125</b> Calculus I MATH 4	AEM 201 AEM 249 MATH 126 PH 105
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placement	<b>CH 101</b> Chemistry NS 4	
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<b>HU/L/FA Elective</b> HU/L/FA 3 (see note 2)
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	<b>AEM 121</b> Intro to Aerospace ES 1 (see note 3) [Fall Only]	
MATH 125		

placement or EN 099	<b>EN 101</b> English Comp I FC 3	EN 102
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**Spring**  
17 credit hours

MATH 125	<b>MATH 126</b> Calculus II MATH 4	AEM 250 AEM 264 PH 106 MATH 227 MATH 237 Math 238 ME 215
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MATH 125	<b>PH 105</b> Physics I NS 4	PH 106 AEM 201
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	<b>ENGR 103</b> Engineering Foundations ENGR 3	AEM 201
MATH 125		

EN 101	<b>EN 102</b> English Comp II FC 3	
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	<b>AEM 249</b> Algorithm Devel Implementation ES 3 (see note 1)	AEM 341 AEM 368 AEM 468
MATH 125		

## SOPHOMORE YEAR

**Fall**  
15 credit hours

MATH 126	<b>MATH 227</b> Calculus III MATH 4	AEM 311 MATH 238 AEM 461
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MATH 126 PH 105	<b>PH 106</b> Physics II NS 4	
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PH 105 (or 125) MATH 125 (or 145) ENGR 103 (or 123) <b>OR</b> MATH 126 (or 146) PH 105 (or 125)	<b>AEM 201</b> Statics ES 3	AEM 250 AEM 264 AEM 311
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MATH 112 or higher.	<b>ENGR 161</b> Small-Scale Engr Graphics ENGR 1 (see note 4)	
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MATH 126	<b>MATH 237</b> Intro to Linear Algebra MATH/C 3	AEM 341 AEM 468
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**Spring**  
16 credit hours

MATH 126	<b>MATH 238</b> App. Differential Equations I MATH/C 3	AEM 313 AEM 368 ME 349 AEM 420
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AEM 201 MATH 126	<b>AEM 250/251</b> Mechanics of Materials I/Lab ES 3/1	AEM 341
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AEM 201 MATH 126	<b>AEM 264</b> Dynamics ES 3	AEM 313 AEM 368
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AEM 201 MATH 227	<b>AEM 311</b> Fluid Mechanics ES 3	AEM 313 AEM 413 AEM 420
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<b>HI/SB Elective</b> HI/SB 3 (see note 2)
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Legend	
C	Computer Requirement
ES	Engineering Science
FC	Freshman Composition
HI/SB	History/Social & Behavioral Sciences
HU/L/FA	Humanities/Literature/Fine Arts
MATH	Mathematics
NS	Natural Science Requirement
W	Writing Requirement

Key		
Pre-requisites	<b>Course #</b> Title Area & Credits	Downward Dependencies
Co-requisites		

Notes:
<ol style="list-style-type: none"> <li>A student may substitute CS 100 (4 semester hours) or RRS 101&amp;102 for AEM 249</li> <li>For more information, consult: <a href="http://registrar.ua.edu/core-curriculum">http://registrar.ua.edu/core-curriculum</a> All students must complete a sequence of two of the HI/SB or HU/L/FA elective courses from the same department.</li> <li>AEM 121 is recommended, but can be satisfied by taking ENGR 111 or other engineering intro courses.</li> <li>ENGR-161 is recommended, but can be satisfied by taking ENGR-171 (10-3-18 AEM dept meeting)</li> </ol>

<p>This is an unofficial flow chart prepared to assist students in planning their coursework. The UA Undergraduate Catalog contains the official listing of academic information.</p> <p>Aerospace Engineering &amp; Mechanics and other departments change their pre-requisites &amp; co-requisites from time to time. Students should consult the UA Undergraduate Catalog and seek advising prior to registering for courses.</p> <p>Dr. Weihua Su Aerospace Engineering &amp; Mechanics</p> <p style="text-align: right;">version: 11_27_2023</p>
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Refer to Department website for Course Rotation Schedule.

Go to <https://catalog.ua.edu/> for information on pre- and co-requisites.

# Department of Aerospace Engineering & Mechanics

BSAE Program – 124 credit hours

## JUNIOR YEAR

### Fall

16 credit hours

AEM 264 AEM 311	<b>AEM 313</b> Aerodynamics ES 3	AEM 402
MATH 238		

MATH 237, AEM 249, or see note 1 in previous page AEM 250	<b>AEM 341/351</b> Aerospace Structures/ Aerospace Structures Laboratory ES 3/1	AEM 402 AEM 451 AEM 461

	<b>AEM 395</b> Professional Development in Aero Engineering ES/W 3 [Fall Only]	AEM 402
AEM 313 or AEM 341		

MATH 126	<b>ME 215</b> Thermodynamics ES 3	AEM 413

<b>HU/L/FA Elective</b> HU/L/FA 3 (see note 2)		
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### Spring

15 credit hours

AEM 249, or see note 1 in previous page AEM 264 MATH 238	<b>AEM 368</b> Flight Mechanics ES 3 [Spring Only]	AEM 402 AEM 468
AEM 313		

ME 215 AEM 311	<b>AEM 413</b> Compressible Flow ES 3 [Spring Only]	AEM 402 AEM 408

MATH 238	<b>ME 349</b> Applied Numerical Methods ES/C 3	AEM 420 AEM 461 AEM 468

<b>HI/SB Elective</b> HI/SB 3 (see note 2)		
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<b>HU/L/FA Elective</b> HU/L/FA 3 (see note 2)		
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## SENIOR YEAR

### Fall

15 credit hours

AEM 313 AEM 341 AEM 368 AEM 395 AEM 413 (or 513) AEM 408 (or 508)	<b>AEM 402</b> Aerospace Design I ES/W 3 [Fall Only]	AEM 404

AEM 413	<b>AEM 408</b> Propulsion ES 3 [Fall Only]	

MATH 237 ME 349 AEM 368 AEM 249, or see note 1 in previous page	<b>AEM 468</b> Flight Dynamics & Control ES 3 [Fall Only]	

variable	<b>AEM Elective</b> ES 3	
variable		

variable	<b>AEM Comput. Elective</b> (see below) ES/C 3	
variable		

### Spring

15 credit hours

AEM 402	<b>AEM 404</b> Aerospace Design II ES 3 [Spring Only]	

AEM 341	<b>AEM 451</b> Aircraft Structural Design ES -3 [Spring Only]	

variable	<b>AEM Elective</b> ES 3	
variable		

variable	<b>Engineering Elective</b> (see below) ES 3	
variable		

<b>HI/SB Elective</b> HI/SB 3 (see note 2)		
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Legend	
C	Computer Requirement
ES	Engineering Science
FC	Freshman Composition
HI/SB	History/Social & Behavioral Sciences
HU/L/FA	Humanities/Literature/Fine Arts
MATH	Mathematics
NS	Natural Science Requirement
W	Writing Requirement

Key		
Pre-requisites	<b>Course #</b> Title Area & Credits	Downward Dependencies
Co-requisites		

<p><b>Engineering Elective (choose one):</b></p> <ul style="list-style-type: none"> <li>Any 400-level, 3-hour AEM elective, any 300- or 400-level, 3-hour College of Engineering course, or MTE 271.</li> </ul> <p><b>AEM Computational Elective (choose one):</b></p> <ul style="list-style-type: none"> <li>AEM 420 Computational Fluid Dynamics (Prerequisites: ME 349, AEM 311 and MATH 238)</li> <li>AEM 461 Computational Aerospace Structures (Prerequisites: MATH 227 or MATH 247, AEM 341 and ME 349)</li> </ul>
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