

# Department of Aerospace Engineering & Mechanics

BSAE Program – 123 credit hours | Version A: ENGR 103 in the Fall Semester/ Based on FAC MEETING MINUTES 16.11.29.1 and 17.04.04.1.

## FRESHMAN YEAR

**Fall**  
15 credit hours

placement	<b>MATH 125</b> Calculus I MATH 4	AEM 201 AEM 249 MATH 126 PH 105

placement	<b>CH 101</b> Chemistry NS 4	

	<b>ENGR 103</b> Engineering Foundations ENGR 3	AEM 201 ENGR 161
MATH 125		

	<b>AEM 121</b> Intro to Aerospace ES 1	
MATH 125		

placement or EN 099	<b>EN 101</b> English Comp I FC 3	EN 102

**Spring**  
15 credit hours

MATH 125	<b>MATH 126</b> Calculus II MATH 4	AEM 250 AEM 264 PH 106 MATH 227 MATH 237 ME 215

MATH 125	<b>PH 105</b> Physics I NS 4	PH 106 AEM 201

placement or MATH 100	<b>EC 110</b> Microeconomics SB 3	

EN 101	<b>EN 102</b> English Comp II FC 3	

ENGR 103	<b>ENGR 161</b> Small-Scale Engr Graphics ENGR 1	

## SOPHOMORE YEAR

**Fall**  
16 credit hours

MATH 126	<b>MATH 227</b> Calculus III MATH 4	AEM 311 MATH 238

MATH 126 PH 105	<b>PH 106</b> Physics II NS 4	

PH 105 MATH 125 ENGR 103	<b>AEM 201</b> Statics ES 3	AEM 250 AEM 264 AEM 311

	<b>AEM 249</b> C++/Algorithms ES 2 (see note 1)	AEM 341 AEM 349 AEM 368
MATH 125		

MATH 126	<b>MATH 237</b> Intro to Linear Algebra MATH 3	AEM 349 AEM 368
MATH 227		

**Spring**  
16 credit hours

MATH 227	<b>MATH 238</b> App. Differential Equations I MATH 3	AEM 313 AEM 349 AEM 360 AEM 368

AEM 201 MATH 126	<b>AEM 250/251</b> Mechanics of Materials I/Lab ES 3/1	AEM 341

AEM 201 MATH 126	<b>AEM 264</b> Dynamics ES 3	AEM 313 AEM 368

AEM 201 MATH 227	<b>AEM 311</b> Fluid Mechanics ES 3	AEM 313 AEM 360

<b>HU/L/FA Elective</b> HU/L/FA 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	Downward Dependencies
Co-requisites	Area & Credits	

Notes:

- A student may substitute CS 100 (4 semester hours) or CBH 101/102 (8 semester hours) for AEM 249.
- For more information, consult: <http://registrar.ua.edu/core-curriculum>

Go to [http://aem.eng.ua.edu/wp-content/uploads/sites/2/2016/07/AEM-4-YEAR-COURSE-ROTATION-2016\\_04.pdf](http://aem.eng.ua.edu/wp-content/uploads/sites/2/2016/07/AEM-4-YEAR-COURSE-ROTATION-2016_04.pdf) for information on course rotations.

Go to <http://courseleaf.ua.edu/engineering> for information on pre- and co-requisites.

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.

Aerospace Engineering & Mechanics and other departments change their pre-requisites & co-requisites from time to time. Students should consult the UA Undergraduate Catalog and seek advising prior to registering for courses.

Dr. Semih Olcmen  
Aerospace Engineering & Mechanics

version: 04\_10\_2017

# Department of Aerospace Engineering & Mechanics

BSAE Program – 123 credit hours | Version A: ENGR 103 in the Fall Semester / Based on FAC MEETING MINUTES 16.11.29.1 and 17.04.04.1.

## JUNIOR YEAR

**Fall**  
15 credit hours

AEM 264 AEM 311 MATH 238	<b>AEM 313</b> Aerodynamics ES 3	AEM 402
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AEM 249 AEM 250	<b>AEM 341</b> Aircraft Structures ES 3	AEM 402 AEM 451
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AEM 249 MATH 237 MATH 238	<b>AEM 349</b> Applied Numerical Methods ES/C 3	AEM 420 AEM 461
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MATH 126	<b>ME 215</b> Thermodynamics ES 3	AEM 413
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<b>HU/L/FA Elective</b> HU/L/FA 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

**Spring**  
15 credit hours

AEM 249 AEM 264 AEM 311 MATH 237 MATH 238	<b>AEM 368</b> Flight Mechanics ES 3 [Spring Only]	AEM 402 AEM 468
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ME 215 AEM 311	<b>AEM 413</b> Compressible Flow ES 3 [Spring Only]	AEM 402 AEM 408
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AEM 311 MATH 238	<b>AEM 360</b> Astronautics ES 3 [Spring Only]	
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<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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Key		
Pre-requisites	<b>Course #</b> Title Area & Credits	Downward Dependencies
Co-requisites		

## SENIOR YEAR

**Fall**  
15 credit hours

AEM 313 AEM 341 AEM 368 AEM 413 AEM 408 AEM 495	<b>AEM 402</b> Aerospace Design I ES/W 3 [Fall Only]	AEM 404
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AEM 413	<b>AEM 408</b> Propulsion ES 3 [Fall Only]	
AEM 402		

AEM 368	<b>AEM 468</b> Flight Dynamics & Control ES 3 [Fall Only]	
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	<b>AEM 495</b> Senior Seminar ES/W 3 [Fall Only]	
AEM 402		

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

<b>Engineering Elective (choose one):</b>
<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>
<b>AEM Computational Elective (choose one):</b>
<ul style="list-style-type: none"> <li>AEM 420 Computational Fluid Dynamics</li> <li>AEM 461 Computational Aerospace Structures</li> </ul>

**Spring**  
16 credit hours

AEM 402	<b>AEM 404</b> Aerospace Design II ES 3 [Spring Only]	
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AEM 341	<b>AEM 451/351</b> Aircraft Structural Design / Aerospace Structures Laboratory ES -3/1 [Spring Only]	
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	<b>AEM Elective</b> ES 3	
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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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Dr. Semih Olcmen Aerospace Engineering & Mechanics
version: 04_10_2017

# Department of Aerospace Engineering & Mechanics

BSAE Program – 123 credit hours | Version B: ENGR 103 in the Spring Semester/ Based on FAC MEETING MINUTES 16.11.29.1 and 17.04.04.1.

## FRESHMAN YEAR

**Fall**  
15 credit hours

placement	<b>MATH 125</b> Calculus I MATH 4	AEM 201 AEM 249 MATH 126 PH 105
placement	<b>CH 101</b> Chemistry NS 4	
placement or MATH 100	<b>EC 110</b> Microeconomics SB 3	
MATH 125	<b>AEM 121</b> Intro to Aerospace ES 1	
placement or EN 099	<b>EN 101</b> English Comp I FC 3	EN 102

**Spring**  
15 credit hours

MATH 125	<b>MATH 126</b> Calculus II MATH 4	AEM 250 AEM 264 PH 106 MATH 227 MATH 237 ME 215
MATH 125	<b>PH 105</b> Physics I NS 4	PH 106 AEM 201
MATH 125	<b>ENGR 103</b> Engineering Foundations ENGR 3	AEM 201 ENGR 161
EN 101	<b>EN 102</b> English Comp II FC 3	
MATH 125	<b>AEM 249</b> C++/Algorithms ES 2 (see note 1)	AEM 341 AEM 349 AEM 368

## SOPHOMORE YEAR

**Fall**  
16 credit hours

MATH 126	<b>MATH 227</b> Calculus III MATH 4	AEM 311 MATH 238
MATH 126 PH 105	<b>PH 106</b> Physics II NS 4	
PH 105 MATH 125 ENGR 103	<b>AEM 201</b> Statics ES 3	AEM 250 AEM 264 AEM 311
ENGR 103	<b>ENGR 161</b> Small-Scale Engr Graphics ENGR 1	
MATH 126 MATH 227	<b>MATH 237</b> Intro to Linear Algebra MATH 3	AEM 349 AEM 368

**Spring**  
16 credit hours

MATH 227	<b>MATH 238</b> App. Differential Equations I	AEM 313 AEM 349 AEM 360 AEM 368
AEM 201 MATH 126	<b>AEM 250/251</b> Mechanics of Materials I/Lab ES 3/1	AEM 341
AEM 201 MATH 126	<b>AEM 264</b> Dynamics ES 3	AEM 313 AEM 368
AEM 201 MATH 227	<b>AEM 311</b> Fluid Mechanics ES 3	AEM 313 AEM 360
<b>HU/L/FA Elective</b> HU/L/FA 3 (see note 2)		

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
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Key		
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Co-requisites	Area & Credits	

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Dr. Semih Olcmen  
Aerospace Engineering & Mechanics

version: 04\_10\_2017

# Department of Aerospace Engineering & Mechanics

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## JUNIOR YEAR

## SENIOR YEAR

**Fall**  
15 credit hours

**Spring**  
15 credit hours

**Fall**  
15 credit hours

**Spring**  
16 credit hours

AEM 264 AEM 311 MATH 238	<b>AEM 313</b> Aerodynamics ES 3	AEM 402
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AEM 249 AEM 264 AEM 311 MATH 237 MATH 238	<b>AEM 368</b> Flight Mechanics ES 3 [Spring Only]	AEM 402 AEM 468
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AEM 313 AEM 341 AEM 368 AEM 413 AEM 408 AEM 495	<b>AEM 402</b> Aerospace Design I ES/W 3 [Fall Only]	AEM 404
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AEM 402	<b>AEM 404</b> Aerospace Design II ES 3 [Spring Only]	
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AEM 249 AEM 250	<b>AEM 341</b> Aircraft Structures ES 3	AEM 402 AEM 451
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ME 215 AEM 311	<b>AEM 413</b> Compressible Flow ES 3 [Spring Only]	AEM 402 AEM 408
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AEM 413	<b>AEM 408</b> Propulsion ES 3 [Fall Only]	
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AEM 341	<b>AEM 451/351</b> Aircraft Structural Design / Aerospace Structures Laboratory ES -3/1 [Spring Only]	
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AEM 249 MATH 237 MATH 238	<b>AEM 349</b> Applied Numerical Methods ES/C 3	AEM 420 AEM 461
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AEM 311 MATH 238	<b>AEM 360</b> Astronautics ES 3 [Spring Only]	
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AEM 368	<b>AEM 468</b> Flight Dynamics & Control ES 3 [Fall Only]	
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	<b>AEM Elective</b> ES 3	
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MATH 126	<b>ME 215</b> Thermodynamics ES 3	AEM 413
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<b>HI/SB Elective</b> HI/SB 3 (see note 2)		
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AEM 402	<b>AEM 495</b> Senior Seminar ES/W 3 [Fall Only]	
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variable	<b>Engineering Elective</b> (see below) ES 3	
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<b>HU/L/FA Elective</b> HU/L/FA 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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variable	<b>AEM Comput. Elective</b> (see below) ES/C 3	
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<b>HI/SB Elective</b> HI/SB 3 (see note 2)		
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C	Computer Requirement
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