

# Flowchart-A

## Department of Aerospace Engineering & Mechanics

BSAE Program – 123 credit hours | Based on FAC MEETING MINUTES 16.11.29.1 ---17.04.04.1---09-19-18---10-3-18 (AEM-451 is W in SS-19)

### FRESHMAN YEAR

### SOPHOMORE YEAR

**Fall**  
15 credit hours

**Spring**  
16 credit hours

**Fall**  
15 credit hours

**Spring**  
16 credit hours

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

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

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

MATH 126 AEM 249 (see note 5)	<b>MATH 238</b> App. Differential Equations I MATH/C 3	AEM 313 AEM 349 AEM 360 AEM 368
MATH 227		

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

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

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

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

<b>HU/L/FA Elective</b> HU/L/FA 3 (see note 2)		
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	<b>ENGR 103</b> Engineering Foundations ENGR 3	AEM 201 ENGR 161
MATH 125		

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

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

	<b>AEM 121</b> Intro to Aerospace ES 1 (see note 3)	
MATH 125		

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

	<b>ENGR 161</b> Small-Scale Engr Graphics ENGR 1 (see note 4)	
ENGR 103		

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

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

	<b>AEM 249</b> C++/Algorithms ES 2 (see note 1)	AEM 341 AEM 349 AEM 368 MATH 237 MATH 238
MATH 125		

MATH 126 AEM 249 (see note 5)	<b>MATH 237</b> Intro to Linear Algebra MATH 3	AEM 349 AEM 368
MATH 227		

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

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:
1. A student may substitute CS 100 (4 semester hours) or RRS 101&102 for AEM 249
2. 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.
3. AEM 121 is recommended, but can be satisfied by taking ENGR 111 or other engineering intro courses.
4. ENGR-161 is recommended, but can be satisfied by taking ENGR-171 (10-3-18 AEM dept meeting)
5. Math-237 and Math-238 requires a course that uses computers as a pre-requisite such as AEM 249; check with your advisor for a list of additional suitable courses.

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: 1_28_2019

Go to [http://aem.eng.ua.edu/files/2018/04/AEM-COURSE-ROTATION-2017\\_2021.pdf](http://aem.eng.ua.edu/files/2018/04/AEM-COURSE-ROTATION-2017_2021.pdf) for information on course rotations.

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

# Flowchart-A

## Department of Aerospace Engineering & Mechanics

BSAE Program – 123 credit hours | Based on FAC MEETING MINUTES 16.11.29.1 ---17.04.04.1---09-19-18---10-3-18 (AEM-451 is W in SS-19)

### 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, or see note 1 in previous page AEM 250	<b>AEM 341</b> Aircraft Structures ES 3	AEM 402 AEM 451
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AEM 249, or see note 1 in previous page 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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#### Spring

15 credit hours

AEM 249, or see note 1 in previous page 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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### 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  AEM 402	<b>AEM 408</b> Propulsion ES 3 [Fall Only]	
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AEM 368 AEM 249, or see note 1 in previous page	<b>AEM 468</b> Flight Dynamics & Control ES 3 [Fall Only]	
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 AEM 402	<b>AEM 495</b> Senior Seminar ES/W 3 [Fall Only]	
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variable  variable	<b>AEM Comput. Elective</b> (see below) ES/C 3	
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#### 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  variable	<b>Engineering Elective</b> (see below) ES 3	
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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		

<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</li> <li>AEM 461 Computational Aerospace Structures</li> </ul>
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# Flowchart-B

## Department of Aerospace Engineering & Mechanics

BSAE Program – 123 credit hours | Based on FAC MEETING MINUTES 16.11.29.1 ---17.04.04.1---09-19-18---10-3-18 (AEM-451 is W in SS-19)

### 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>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)	
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

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

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

	<b>ENGR 161</b> Small-Scale Engr Graphics ENGR 1 (see note 4)	
ENGR 103		

### 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 237 MATH 238
MATH 125		

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

**Spring**  
16 credit hours

MATH 126 AEM 249 (see note 5)	<b>MATH 238</b> App. Differential Equations I MATH/C 3	AEM 313 AEM 349 AEM 360 AEM 368
MATH 227		

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

MATH 126 AEM 249 (see note 5)	<b>MATH 237</b> Intro to Linear Algebra MATH 3	AEM 349 AEM 368
MATH 227		

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:
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  - For more information, consult: <http://registrar.ua.edu/core-curriculum>  
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  - ENGR-161 is recommended, but can be satisfied by taking ENGR-171 (10-3-18 AEM dept meeting)  
Math-237 and Math-238 requires a course that uses computers as a pre-requisite such as AEM 249; check with your advisor for a list of additional suitable courses.
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Aerospace Engineering & Mechanics

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# Flowchart-B

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### 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, or see note 1 in previous page AEM 250	<b>AEM 341</b> Aircraft Structures ES 3	AEM 402 AEM 451
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AEM 249, or see note 1 in previous page 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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#### Spring

15 credit hours

AEM 249, or see note 1 in previous page 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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### 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  AEM 402	<b>AEM 408</b> Propulsion ES 3 [Fall Only]	
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AEM 368 AEM 249, or see note 1 in previous page	<b>AEM 468</b> Flight Dynamics & Control ES 3 [Fall Only]	
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 AEM 402	<b>AEM 495</b> Senior Seminar ES/W 3 [Fall Only]	
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variable  variable	<b>AEM Comput. Elective</b> (see below) ES/C 3	
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#### 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  variable	<b>Engineering Elective</b> (see below) ES 3	
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<b>HI/SB Elective</b> HI/SB 3 (see note 2)
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