### Department of Aerospace Engineering & Mechanics

**BSAE Program – 123 credit hours | Based on FAC MEETING MINUTES 16.11.29.1 ---17.04.01.---09-19-18—-10-3-18 (AEM-451 is W in SS-19)**

**FRESHMAN YEAR**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
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</thead>
<tbody>
<tr>
<td><strong>15 credit hours</strong></td>
<td><strong>16 credit hours</strong></td>
</tr>
<tr>
<td><strong>MATH 125</strong> Calculus I MATH 4</td>
<td><strong>MATH 126</strong> Calculus II MATH 4</td>
</tr>
<tr>
<td><strong>CH 101</strong> Chemistry NS 4</td>
<td><strong>PH 105</strong> Physics I NS 4</td>
</tr>
<tr>
<td><strong>ENGR 103</strong> Engineering Foundations ENGR 3</td>
<td><strong>AEM 201</strong> Statics ES 3</td>
</tr>
<tr>
<td><strong>AEM 121</strong> Intro to Aerospace ES 1</td>
<td><strong>EN 102</strong> English Comp II FC 3</td>
</tr>
<tr>
<td><strong>EN 101</strong> English Comp I FC 3</td>
<td><strong>AEM 249</strong> C++/Algorithms ES 2</td>
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**SOPHOMORE YEAR**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
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<tbody>
<tr>
<td><strong>15 credit hours</strong></td>
<td><strong>16 credit hours</strong></td>
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<tr>
<td><strong>MATH 126</strong></td>
<td><strong>MATH 227</strong> Calculus III MATH 4</td>
</tr>
<tr>
<td><strong>PH 106</strong> Physics II NS 4</td>
<td><strong>PH 105</strong> MATH 125 ENGR 103</td>
</tr>
<tr>
<td><strong>AEM 201</strong> MATH 126</td>
<td><strong>AEM 201</strong> MATH 126</td>
</tr>
<tr>
<td><strong>AEM 249</strong> (see note 5)</td>
<td><strong>AEM 201</strong> MATH 227</td>
</tr>
<tr>
<td><strong>AEM 121</strong> Intro to Aerospace ES 1</td>
<td><strong>ENGR 161</strong> Small-Scale Engr Graphics ENGR 1</td>
</tr>
<tr>
<td><strong>EN 102</strong> English Comp II FC 3</td>
<td><strong>AEM 249</strong> (see note 5)</td>
</tr>
<tr>
<td><strong>AEM 249</strong> (see note 5)</td>
<td><strong>AEM 311</strong> Fluid Mechanics ES 3</td>
</tr>
<tr>
<td><strong>MATH 227</strong></td>
<td><strong>EC 110</strong> Microeconomics SB 3</td>
</tr>
<tr>
<td><strong>MATH 227</strong></td>
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</tr>
</tbody>
</table>

**Key**

- **Pre-requisites**
- **Area & Credits**
- **Co-requisites**
- **Course #**
- **Course Title**
- **Downward Dependencies**

**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

**Notes:**

1. A student may substitute CS 100 (4 semester hours) or RRS 101&102 for AEM 249.
2. For more information, consult: [http://registrar.ua.edu/core-curriculum](http://registrar.ua.edu/core-curriculum)
   - All students must complete a sequence of two of the Hi/SB or HU/L/FA elective courses from the same department.
   - AEM 121 is recommended, but can be satisfied by taking ENGR 111 or other engineering intro courses.
   - 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.

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


Go to [http://courseleaf.ua.edu](http://courseleaf.ua.edu) 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

- AEM 313
  Aerodynamics
  ES 3

- AEM 402

Spring
15 credit hours
- AEM 249, or see note 1 in previous page
- AEM 264
- AEM 311
- MATH 237
- MATH 238

- AEM 368
  Flight Mechanics
  ES 3
  [Spring Only]

- AEM 402
- AEM 458

Fall
15 credit hours
- AEM 311
- AEM 341
- AEM 368
- AEM 413

- AEM 413
  Compressible Flow
  ES 3
  [Spring Only]

- AEM 402
- AEM 408

Spring
16 credit hours
- AEM 402
- AEM 454

- AEM 404
  Aerospace Design II
  ES 3
  [Spring Only]

- AEM 451/351
  Aircraft Structural Design / Aerospace Structures Laboratory
  ES -3/1
  [Spring Only]

SENIOR YEAR

Fall
15 credit hours
- AEM 249, or see note 1 in previous page
- AEM 264
- AEM 311
- MATH 237
- MATH 238

- AEM 360
  Astronautics
  ES 3
  [Spring Only]

- AEM 402
- AEM 458

Spring
16 credit hours
- AEM 402
- AEM 454

- AEM 404
  Aerospace Design II
  ES 3
  [Spring Only]

- AEM Elective
  ES 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

Course #

Title

Area & Credits

Downward Dependencies

Co-requisites

Engineering Elective (choose one):
- Any 400-level, 3-hour AEM elective, any 300- or 400-level, 3-hour College of Engineering course, or MTE 271.

AEM Computational Elective (choose one):
- AEM 420 Computational Fluid Dynamics
- AEM 461 Computational Aerospace Structures

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Aerospace Engineering & Mechanics

version: 1_28_2019
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

<table>
<thead>
<tr>
<th>Fall</th>
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<tbody>
<tr>
<td>MATH 125 Calculus I</td>
<td>AEM 201 AEM 249 MATH 126 PH 105</td>
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<tr>
<td>MATH 126 Calculus II</td>
<td>AEM 250 AEM 264 PH 106 MATH 227 MATH 237 ME 215</td>
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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>MATH 125</td>
<td>PH 105 Physics I</td>
</tr>
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<td>ENGR 103 Engineering Foundations ENGR 3</td>
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<tr>
<th>Sophomore Year</th>
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<tbody>
<tr>
<td>Fall</td>
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<tr>
<td>MATH 126</td>
</tr>
<tr>
<td>MATH 238</td>
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</table>

<table>
<thead>
<tr>
<th>Spring</th>
<th>16 credit hours</th>
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<tbody>
<tr>
<td>MATH 126 PH 105</td>
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<tr>
<td>PH 106 Physics II</td>
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<td>AEM 201 AEM 264 AEM 311</td>
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<table>
<thead>
<tr>
<th>AEM 249 C++/Algorithms</th>
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<tbody>
<tr>
<td>ES 2 (see note 1)</td>
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<table>
<thead>
<tr>
<th>Course #</th>
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<th>Area &amp; Credits</th>
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<tr>
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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

Pre-requisites |
Co-requisites |
Course # |
Area & Credits |
Downward Dependencies |

Notes:
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   All students must complete a sequence of two of the Hi/SB or HU/L/FA elective courses from the same department.
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4. ENGR 161 is recommended, but can be satisfied by taking ENGR-171 (10-3-18 AEM dept meeting).
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version: 1_28_2019

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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)

#### JUNIOR YEAR

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
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<tbody>
<tr>
<td>15 credit hours</td>
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<table>
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<tr>
<th>Course #</th>
<th>Title</th>
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<tbody>
<tr>
<td>AEM 264</td>
<td>AER 251</td>
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<tr>
<td>AEM 311</td>
<td>MATH 238</td>
<td></td>
</tr>
<tr>
<td>AEM 313</td>
<td>Aerodynamics</td>
<td>ES 3</td>
</tr>
<tr>
<td>AEM 402</td>
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<tr>
<td>AEM 429, or see note 1 in previous page</td>
<td>AEM 264, MATH 237</td>
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<tr>
<td>AEM 431</td>
<td>Aircraft Structures</td>
<td>ES 3</td>
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<tr>
<td>AEM 439</td>
<td>Applied Numerical Methods</td>
<td>ES/C 3</td>
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<td>AEM 450</td>
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<td>ME 215</td>
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<td>AEM 411</td>
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<tr>
<td>AEM 413</td>
<td>Compressible Flow</td>
<td>ES 3</td>
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<td>AEM 430</td>
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<tr>
<td>MATH 237</td>
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<td>AEM 434</td>
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<tr>
<td>HU/L/FA</td>
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<tr>
<th>Course #</th>
<th>Title</th>
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<tbody>
<tr>
<td>AEM 402</td>
<td>Aerospace Design I</td>
<td>ES/W 3</td>
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<tr>
<td>AEM 403</td>
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<tr>
<td>AEM 408</td>
<td>Propulsion</td>
<td>ES 3</td>
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<td>AEM 409</td>
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<td>AEM 413</td>
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<td>AEM 495</td>
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<tr>
<td>AEM 451/351</td>
<td>Aircraft Structural Design / Aerospace Structures Laboratory</td>
<td>ES-3/1</td>
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