**Department of Aerospace Engineering & Mechanics**  
BSAE Program – 125 credit hours | Version A: ENGR 103 in the Fall Semester

### FRESHMAN YEAR

**Fall**  
15 credit hours

- **MATH 125**  
  Calculus I  
  MATH 4  
  Placement or EN 109

- **AEM 121**  
  Intro to Aerospace  
  ENGR 3

- **ENGR 103**  
  Engineering Foundations  
  ENGR 3

**Spring**  
15 credit hours

- **MATH 125**  
  Calculus II  
  MATH 4

- **PH 105**  
  Physics I  
  NS 4

- **EN 101**  
  English Comp I  
  FC 3

**Freshman Year Pre-requisites**

- **AEM 201**
- **AEM 125**
- **ENGR 103**

**Freshman Year Co-requisites**

- **ENGR 101**
- **EN 102**

**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

### SOPHOMORE YEAR

**Fall**  
16 credit hours

- **MATH 126**  
  Calculus III  
  MATH 4

- **PH 106**  
  Physics II  
  NS 4

- **ENGR 161**  
  Small-Scale Engr Graphics  
  ENGR 1

**Spring**  
16 credit hours

- **MATH 227**  
  App. Differential Equations I  
  MATH 3

- **AEM 201**  
  Statics  
  ES 3

- **AEM 341**  
  Fluid Mechanics  
  ES 3

**Sophomore Year Pre-requisites**

- **AEM 201**
- **AEM 249**
- **AEM 311**

**Sophomore Year Co-requisites**

- **ENGR 103**
- **EN 102**

**Notes:**

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

**Key**

- Pre-requisites
- Course #  
  Title  
  Area & Credits

**Downward Dependencies**

- **AEM 201**
- **MATH 227**

**Course Rotation**

- **Ph 105**  
  Placement or MATH 125

**Placement Notes**

- **ENGR 103**
- **MATH 125**

**Notes:**

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

**Course Rotations:**


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

**Credits:**

- **15 credit hours**
- **16 credit hours**

**Credits:**

- **125 credit hours**

**Version:** 08_31_2016
# BSAE Program – 125 credit hours | Version A: ENGR 103 in the Fall Semester

## JUNIOR YEAR

<table>
<thead>
<tr>
<th>Fall</th>
<th>16 credit hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AEM 313</strong></td>
<td>Aerodynamics</td>
</tr>
<tr>
<td><strong>ME 215</strong></td>
<td>Thermodynamics</td>
</tr>
<tr>
<td><strong>AEM 249</strong></td>
<td>Aircraft Structures</td>
</tr>
<tr>
<td><strong>AEM 420</strong></td>
<td>Compressible Flow</td>
</tr>
<tr>
<td><strong>MATH 126</strong></td>
<td>Mathematics</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spring</th>
<th>16 credit hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AEM 368</strong></td>
<td>Flight Dynamics &amp; Control I</td>
</tr>
<tr>
<td><strong>AEM 495</strong></td>
<td>Senior Seminar</td>
</tr>
<tr>
<td><strong>AEM 402</strong></td>
<td>Aerospace Design I</td>
</tr>
<tr>
<td><strong>AEM 408</strong></td>
<td>Elective</td>
</tr>
</tbody>
</table>

## SENIOR YEAR

<table>
<thead>
<tr>
<th>Fall</th>
<th>15 credit hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AEM 313</strong></td>
<td>Aerodynamics</td>
</tr>
<tr>
<td><strong>AEM 311</strong></td>
<td>Aerospace Structures</td>
</tr>
<tr>
<td><strong>AEM 420</strong></td>
<td>Compressible Flow</td>
</tr>
<tr>
<td><strong>AEM 461</strong></td>
<td>Aerospace Structures</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spring</th>
<th>16 credit hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AEM 408</strong></td>
<td>Propulsion</td>
</tr>
<tr>
<td><strong>AEM 402</strong></td>
<td>Elective</td>
</tr>
<tr>
<td><strong>AEM 404</strong></td>
<td>Aerospace Design II</td>
</tr>
</tbody>
</table>

Legend:
- C: Computer Requirement
- ES: Engineering Science
- FC: Freshman Composition
- HI/SB: History/Social & Behavioral Sciences
- HU/L/FA: Humanities/Literature/Fine Arts
- NS: Natural Science Requirement
- W: Writing Requirement

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

Engineering Elective (choose one):
- Any 400 level AEM elective course
- ECE 320 Fundamentals of Electrical Engineering
- ECE 340 Electromagnetics
- ECE 380 Digital Logic
- ME 305 Thermodynamics II
- ME 309 Heat Transfer
- ME 350 Static Machine Components
- MTE 271 Engineering Materials

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

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. John Baker, Department Head
Aerospace Engineering & Mechanics

version: 08_31_2016
# Department of Aerospace Engineering & Mechanics

**BSAE Program – 125 credit hours | Version B: ENGR 103 in the Spring Semester**

## FRESHMAN YEAR

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 credit hours</td>
<td>16 credit hours</td>
</tr>
</tbody>
</table>

### Placement
- **MATH 125**
  - Calculus I
  - MATH 4
- **AEM 201**
  - AEM 249
  - MATH 126
  - PH 105

### Placement or MATH 100
- **CH 101**
  - Chemistry
  - NS 4

### EC 110
- Microeconomics
  - SB 3

### Placement or EN 099
- **EN 101**
  - English Comp I
  - FC 3

### AEM 121
- Intro to Aerospace
  - ES 1

### MATH 125

### ENGR 103
- Engineering Foundations
  - ENGR 3

### AEM 201
- AEM 249
- C++/Algorithms
  - ES 2
  - (see note 1)

### EN 102
- English Comp II
  - FC 3

### AEM 250
- AEM 264
- AEM 311

### ENGR 103
- Statics
  - ES 3

### ENGR 161
- Small-Scale Engr Graphics
  - ENGR 1

### AEM 313
- AEM 341
- Fluid Mechanics
  - ES 3

### Placement or EN 102
- **ENGR 103**
  - ENGR 161
  - ENGR 201

### AEM 250/251
- Mechanics of Materials I/Lab
  - ES 3/1

### MATH 126

### PH 105
- Physics I
  - NS 4

### PH 106
- Physics II
  - NS 4

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

## SOPHOMORE YEAR

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 credit hours</td>
<td>16 credit hours</td>
</tr>
</tbody>
</table>

### MATH 126

### PH 106
- Physics II
  - NS 4

### MATH 227
- Calculus III
  - MATH 4

### AEM 311
- MATH 238
- App. Differential Equations I
  - MATH 3

### AEM 201
- AEM 250
- AEM 264
- AEM 311

### AEM 250
- AEM 264
- Mechanics of Materials I/Lab
  - ES 3/1

### MATH 126

### PH 105
- MATH 125

### ENGR 103
- Statics
  - ES 3

### ENGR 161
- Small-Scale Engr Graphics
  - ENGR 1

### AEM 313
- AEM 341
- Fluid Mechanics
  - ES 3

### Placement
- **AEM 121**
  - ENGR 103
  - ENGR 161
  - ENGR 201

### AEM 201
- AEM 249
- C++/Algorithms
  - ES 2
  - (see note 1)

### ENGR 103
- ENGR 161
- ENGR 201

### MATH 126

### MATH 227

### HU/L/FA Elective
- HU/L/FA 3
  - (see note 2)

### Key

<table>
<thead>
<tr>
<th>Pre-requisites</th>
<th>Course #</th>
<th>Title</th>
<th>Area &amp; Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>C</strong> Computer Requirement</td>
<td><strong>ES</strong> Engineering Science</td>
<td><strong>FC</strong> Freshman Composition</td>
<td><strong>HU/L/FA</strong> Humanities/Literature/Fine Arts</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Co-requisites</th>
<th><strong>Course Dependencies</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Course #</strong></td>
<td><strong>Title</strong></td>
</tr>
</tbody>
</table>

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


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. John Baker, Department Head
Aerospace Engineering & Mechanics

**version: 08_31_2016**
### Department of Aerospace Engineering & Mechanics

**BSAE Program – 125 credit hours**  
**Version B: ENGR 103 in the Spring Semester**

#### JUNIOR YEAR

**Fall**
- 16 credit hours

- **AEM 264**  
  AEM 313  
  Aerodynamics  
  ES 3  
  (Fall Only)

- **AEM 249**  
  AEM 402  
  AEM 413  
  Compressible Flow  
  ES 3  
  (Spring Only)

- **AEM 360**  
  Astronautics  
  ES 3  
  (Spring Only)

- **ME 215**  
  AEM 311  
  Thermodynamics  
  ES 3  
  (Fall Only)

- **MATH 126**  
  AEM 413  
  Variable  
  Engineering Elective  
  (see below)  
  ES 3

- **HU/L/FA Elective**  
  HU/L/FA 3  
  (see note 2)

#### Spring
- 16 credit hours

- **AEM 264**  
  AEM 313  
  Aerodynamics  
  ES 3  
  (Fall Only)

- **AEM 249**  
  AEM 402  
  AEM 413  
  Compressible Flow  
  ES 3  
  (Spring Only)

- **AEM 360**  
  Astronautics  
  ES 3  
  (Spring Only)

- **ME 215**  
  AEM 311  
  Thermodynamics  
  ES 3  
  (Fall Only)

- **MATH 126**  
  AEM 413  
  Variable  
  Engineering Elective  
  (see below)  
  ES 3

- **HU/L/FA Elective**  
  HU/L/FA 3  
  (see note 2)

#### SENIOR YEAR

**Fall**
- 15 credit hours

- **AEM 313**  
  AEM 402  
  AEM 413  
  Compressible Flow  
  ES 3  
  (Fall Only)

- **AEM 420**  
  Aerospace Design I  
  ES 3  
  (Fall Only)

- **AEM 495**  
  Senior Seminar  
  ES/W 2  
  (Fall Only)

- **AEM Comput. Elective**  
  Variable  
  (see below)  
  ES/C 3

- **Engineering Elective (choose one):**
  - Any 400 level AEM elective course
  - ECE 320 Fundamentals of Electrical Engineering
  - ECE 340 Electromagnetics
  - ME 305 Thermodynamics II
  - ME 309 Heat Transfer
  - ME 350 Static Machine Components
  - MTE 271 Engineering Materials

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

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

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

#### Spring
- 16 credit hours

- **AEM 313**  
  AEM 402  
  AEM 413  
  Compressible Flow  
  ES 3  
  (Spring Only)

- **AEM 408**  
  Propulsion  
  ES 3  
  (Fall Only)

- **AEM 495**  
  Senior Seminar  
  ES/W 2  
  (Fall Only)

- **AEM Comput. Elective**  
  Variable  
  (see below)  
  ES/C 3

- **Engineering Elective (choose one):**
  - Any 400 level AEM elective course
  - ECE 320 Fundamentals of Electrical Engineering
  - ECE 340 Electromagnetics
  - ME 305 Thermodynamics II
  - ME 309 Heat Transfer
  - ME 350 Static Machine Components
  - MTE 271 Engineering Materials

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

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

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

### 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**

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. John Baker, Department Head  
Aerospace Engineering & Mechanics