Department of Aerospace Engineering & Mechanics

BSAE Program – 123 credit hours

FRESHMAN YEAR

Fall
15 credit hours

Pre-req	Course	Downward Dependencies
placement	**MATH 125** — Calculus I — MATH 4	AEM 201, AEM 249, MATH 126, PH 105
placement	**CH 101** — Chemistry — NS 4	
	HU/L/FA Elective — HU/L/FA 3 (see note 2)	
MATH 125	**AEM 121** — Intro to Aerospace — ES 1 (see note 3) [Fall Only]	
placement or EN 099	**EN 101** — English Comp I — FC 3	EN 102

Spring
16 credit hours

Pre-req	Course	Downward Dependencies
MATH 125	**MATH 126** — Calculus II — MATH 4	AEM 250, AEM 264, PH 106, MATH 227, MATH 237, Math 238, ME 215
MATH 125	**PH 105** — Physics I — NS 4	PH 106, AEM 201
MATH 125	**ENGR 103** — Engineering Foundations — ENGR 3	AEM 201
EN 101	**EN 102** — English Comp II — FC 3	
MATH 125	**AEM 249** — C++/Algorithms — ES 2 (see note 1)	AEM 341, AEM 368

SOPHOMORE YEAR

Fall
15 credit hours

Pre-req	Course	Downward Dependencies
MATH 126	**MATH 227** — Calculus III — MATH 4	AEM 311, MATH 238, AEM 461
MATH 126, PH 105	**PH 106** — Physics II — NS 4	
PH 105 (or 125), MATH 125 (or 145), ENGR 103 (or 123) **OR** MATH 126 (or 146), PH 105 (or 125)	**AEM 201** — Statics — ES 3	AEM 250, AEM 264, AEM 311
MATH 112 or higher.	**ENGR 161** — Small-Scale Engr Graphics — ENGR 1 (see note 4)	
MATH 126	**MATH 237** — Intro to Linear Algebra — MATH/C 3	AEM 368

Spring
16 credit hours

Pre-req	Course	Downward Dependencies
MATH 126	**MATH 238** — App. Differential Equations I — MATH/C 3	AEM 313, AEM 360, AEM 368, ME 349, AEM 420
AEM 201, MATH 126	**AEM 250/251** — Mechanics of Materials I/Lab — ES 3/1	AEM 341
AEM 201, MATH 126	**AEM 264** — Dynamics — ES 3	AEM 313, AEM 368
AEM 201, MATH 227	**AEM 311** — Fluid Mechanics — ES 3	AEM 313, AEM 360, AEM 420
placement or, MATH 100 or above	**EC 110** — 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

Refer to Department website for Course Rotation Schedule.

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

Key

Pre-requisites	**Course #** 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:
   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.
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)

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: 4_20_2020

Department of Aerospace Engineering & Mechanics

BSAE Program – 123 credit hours

JUNIOR YEAR

Fall
16 credit hours

Pre-requisites	Course	Downward Dependencies
AEM 264, AEM 311, MATH 238	**AEM 313** Aerodynamics — ES 3	AEM 402
AEM 249, or see note 1 in previous page, AEM 250, AEM 251	**AEM 341/351** Aircraft Structures/ Aerospace Structures Laboratory — ES 3/1	AEM 402, AEM 451, AEM 461
AEM 311, MATH 238	**AEM 360** Astronautics — ES 3 [Fall Only]	
MATH 126	**ME 215** Thermodynamics — ES 3	AEM 413
	HU/L/FA Elective — HU/L/FA 3 (see note 2)	

Spring
15 credit hours

Pre-requisites	Course	Downward Dependencies
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 468
ME 215, AEM 311	**AEM 413** Compressible Flow — ES 3 [Spring Only]	AEM 402, AEM 408
MATH 238	**ME-349** Applied Numerical Methods — ES/C 3	AEM 420, AEM 461
	HI/SB Elective — HI/SB 3 (see note 2)	
	HU/L/FA Elective — HU/L/FA 3 (see note 2)	

SENIOR YEAR

Fall
15 credit hours

Pre-requisites	Course	Downward Dependencies
AEM 313, AEM 341, AEM 368, AEM 413 (or 513), AEM 408 (or 508)	**AEM 402** Aerospace Design I — ES/W 3 [Fall Only]	AEM 404
AEM 413, AEM 402	**AEM 408** Propulsion — ES 3 [Fall Only]	
AEM 368, AEM 249, or see note 1 in previous page	**AEM 468** Flight Dynamics & Control — ES 3 [Fall Only]	
AEM 402	**AEM 495** Senior Seminar — ES/W 3 [Fall Only]	
variable, variable	**AEM Comput. Elective** (see below) — ES/C 3	

Spring
15 credit hours

Pre-requisites	Course	Downward Dependencies
AEM 402	**AEM 404** Aerospace Design II — ES 3 [Spring Only]	
AEM 341	**AEM 451** Aircraft Structural Design — ES -3 [Spring Only]	
	AEM Elective — ES 3	
variable, variable	**Engineering Elective** (see below) — ES 3	
	HI/SB Elective — HI/SB 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
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 (Prerequisites: AEM 311 and MATH 238)
- AEM 461 Computational Aerospace Structures (Prerequisites: MATH 227 or MATH 247, AEM 341 and ME 349)

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