

## Optional Course Tracks for Aerospace Engineering

The Aerospace Engineering curriculum covers foundational concepts in a number of areas, ranging from dynamics and aerodynamics to computer-aided analysis for design and computational solutions to engineering problems. Through the first several semesters, students will gain exposure to foundational concepts in Aerospace and Mechanical Engineering.

Students following the standard program will have the opportunity to take more technical and AME Core electives, while students pursuing one of the following specialized tracks will take specific courses relative to the specialization.

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
GESM (GE B) 4	WRIT 150 4	GE C 4	AME 261 4	GE D* 4	GE C 4	GE A* 4	WRIT 340 WRIT 150 4
AME 105 4	GE B 4	AME 201 PHYS 151Lg or 161Lg or 171L 3	AME 204 AME 201 or CE 205 3	AME 301 AME 201 or CE 205 3	AME 302 MATH 245 3	AME 404 3	AME 436 AME 310, AME 309 or CE 309 3
MATH 125 (GE F)* 4	MATH 126 or MATH 129* MATH 125 4	MATH 226 or MATH 229 MATH 126 or 129 4	MATH 245 MATH 226 or 229 4	AME 310 MATH 226 or 227 or 229 3	AME 309 AME 201, (MATH 245) 4	TECHNICAL ELECTIVE 3	AME 451 AME 302, MATH 245 3
CHEM 105AL or MASC 110L* 4	PHYS 151L (GE E) MATH 125 or 126 or 226 4	PHYS 152L PHYS 151L, (MATH 226) 4	AME 231L (AME 204) 3	AME 308 AME 204, (AME 301) 3	PHYS 153L PHYS 152 4	TECHNICAL ELECTIVE 3	AME 481 4
ENGR 102 2	ITP 168 2	OPTIONAL ELECTIVE 3	ASTE 280 MATH 226g, PHYS 152Lg 3	AME 341aL PHYS 152L or 162L, MATH 126 or 127 or 129 3	AME 341bL AME 341aL 3	AME 441aL AME 341bL 3	OPTIONAL ELECTIVE 4
			OPTIONAL ELECTIVE 1	OPTIONAL ELECTIVE 2		OPTIONAL ELECTIVE 2	

### MATHEMATICS (16 UNITS)

**MATH 125:** Calculus I\*  
**MATH 126 or MATH 129:** Calculus II\*  
**MATH 226 or MATH 229:** Calculus III  
**MATH 245:** Mathematics of Phys. and Engr.

### PHYSICS (12 UNITS)

**PHYS 151L:** Mechanics and Thermodynamics  
**PHYS 152L:** Electricity and Magnetism  
**PHYS 153L:** Optics and Modern Physics

### CHEMISTRY/MATERIALS SCIENCE (4 UNITS)

**CHEM 105aL:** General Chemistry\*  
 or **MASC 110L:** Materials Science

### GENERAL EDUCATION (32 UNITS)

**GE A** The Arts (1 Course)\*  
**GE B** Humanistic Inquiry (2 Courses)  
**GE C** Social Analysis (2 Courses)  
**GE D** Life Sciences (1 Course)\*  
**GE E** Physical Sciences (1 Course)\*  
**GE F** Quantitative Reasoning (1 Course)\*  
**GE G,H** Global Perspectives (2 Courses)\*  
**GESM** General Education Seminar (1 Course)

### WRITING (8 UNITS)

**WRIT 150:** Writing and Critical Reasoning  
**WRIT 340:** Advanced Writing

### ENGINEERING (67 UNITS)

**AME 105:** Intro. to Aerospace Engineering  
**AME 201:** Statics  
**AME 204:** Strength of Materials  
**AME 231L:** Mechanical Behavior of Materials  
**AME 261:** Basic Flight Mechanics  
**AME 301:** Dynamics  
**AME 302:** Dynamic Systems  
**AME 308:** Comp. Aided Analysis for Design  
**AME 309:** Dynamics of Fluids  
**AME 310:** Engineering Thermodynamics I  
**AME 341aL:** Mechoptronics Laboratory I  
**AME 341bL:** Mechoptronics Laboratory II  
**AME 404:** Comp. Solutions to Engr. Problems  
**AME 436:** Energy and Propulsion  
**AME 441aL:** Senior Projects Laboratory  
**AME 451:** Linear Control Systems I  
**AME 481:** Aircraft Design  
**ASTE 280:** Astronautics & Space Environment I  
**ENGR 102:** Engineering Freshman Academy  
**ITP 168:** Introduction to MATLAB  
**TECHNICAL ELECTIVES**

### SPECIAL NOTES

Courses with the \* symbol may be satisfied with AP, IB or A-Level exams. See page 16 for more information.

**GE:** Engineering students are encouraged to satisfy GE G and GE H with a course that also satisfies a Core Literacy. GE H may be satisfied by AP/IB. Additionally, your GESM course should be taken in categories A, B, C, or D only. See page 15 for more information and consult your advisor for detailed assistance.

**OPTIONAL ELECTIVES:** Consult with your academic advisor to explore optional elective courses. These courses are not required.

**TECHNICAL ELECTIVES:** Any upper-division course in engineering, chemistry, physics, and mathematics. See academic advisor for exceptions/substitutions.

### Aeronautics

FOURTH YEAR	
FALL	SPRING
GE A* 4	WRIT 340 WRIT 150 4
AME 459 3	AME 436 AME 310, (AME 309 or CE 309) 3
AME 451 AME 302, MATH 245 3	AME 481 4
AME 457 AME 310, (AME 309 or CE 309) or AME 443 AME 420 or 451 3	AME 460 AME 309 3
AME 441a AME 341bL 3	OPTIONAL ELECTIVE 4
OPTIONAL ELECTIVE 2	

### Structures

FOURTH YEAR	
FALL	SPRING
GE A* 4	WRIT 340 WRIT 150 4
AME 451 AME 302, MATH 245 3	AME 436 AME 310, (AME 309 or CE 309) 3
AME 485 AME 204 or CE 358 CE 225 3	AME 481 4
AME 441a AME 341bL 3	AME 403 AME 204 or AME 420 MATH 245 3
OPTIONAL ELECTIVE 5	AME 408 AME 204 or CE 225 or CE 458 (CE 108, 358) or (ITP 168, AME 353) 3
	OPTIONAL ELECTIVE 1

### Controls

FOURTH YEAR	
FALL	SPRING
GE A* 4	WRIT 340 WRIT 150 4
AME 451 AME 302, MATH 245 3	AME 436 AME 310, (AME 309 or CE 309) 3
AME 459 or 480 3	AME 481 4
AME 441a AME 341bL 3	AME 443 AME 420 or 451 or EE 482 3
OPTIONAL ELECTIVE 5	AME 453 MATH 245 or AME 420 MATH 245 3
	OPTIONAL ELECTIVE 1

### Thermal Systems

THIRD YEAR	FOURTH YEAR	
SPRING	FALL	SPRING
GE A* 4	GE C 4	WRIT 340 WRIT 150 4
AME 302 MATH 245 3	AME 451 AME 302, MATH 245 3	AME 436 AME 310, (AME 309 or CE 309) 3
AME 309 (MATH 245) 3	AME 430 AME 331 3	AME 481 4
AME 331 AME 310, (AME 309 or CE 309) 3	AME 441a AME 341bL 3	PHYS 153 PHYS 152 4
AME 341b AME 341aL 3	OPTIONAL ELECTIVE 5	AME 414 AME 310 or PHYS 316 (PHYS 151, MATH 226) 3 or 4
OPTIONAL ELECTIVE 2		

### Design

FOURTH YEAR	
FALL	SPRING
GE A* 4	WRIT 340 WRIT 150 4
AME 451 AME 302, MATH 245 3	AME 436 AME 310, (AME 309 or CE 309) 3
AME 459 or 480 3	AME 481 4
AME 441a AME 341bL 3	AME 408 AME 204 or CE 225 3
AME 430 AME 331 3	OPTIONAL ELECTIVE 4
OPTIONAL ELECTIVE 2	