CAL POLY
Aerospace Engineering
COLLEGE OF ENGINEERING

AEROSPACE ENGINEERING

Building 41, Room 134
805-756-7172
aero.calpoly.edu

PROGRAM DESCRIPTION

Cal Poly Aerospace Engineering students prepare for careers in aerodynamics, propulsion, stability and controls, and structures of aircraft, missiles and spacecraft. The problems faced by the aerospace industry offer an exciting engineering challenge, and an opportunity for our students to gain valuable hands-on experience in design and manufacturing.

OUR MISSION

To educate students for professional aerospace careers of technical responsibility and leadership in a modern, multidisciplinary, system-based environment. This is achieved through a hands-on approach in labs integrated with a systems view of engineering and a team-centered, yearlong, capstone design experience.

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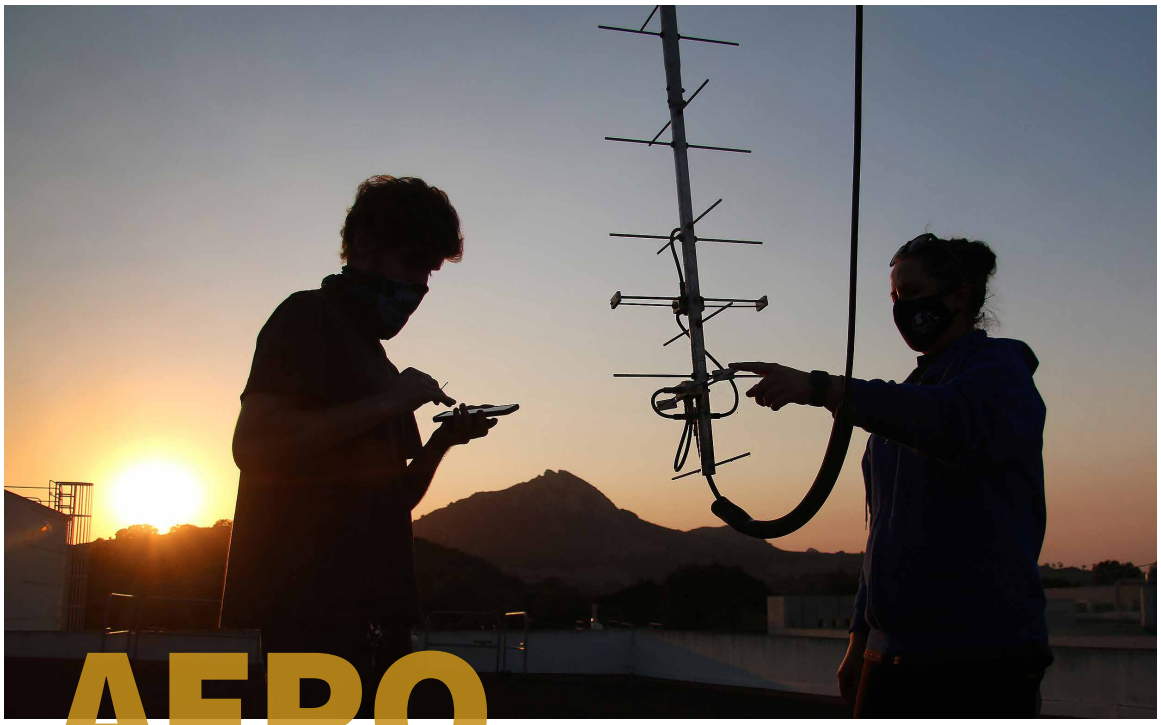
Concentrations offered: Aeronautics, which focuses on the design, building and testing of aircraft and related systems; and Astronautics, which focuses on complex space-based systems, spacecraft power and communications systems and spacecraft design.



AERO

462 undergraduate students enrolled in Aerospace Engineering

39 graduate students enrolled in the Blended BS+MS programs

LABS INCLUDE:

- Aircraft and Spacecraft Design
- Aerothermodynamics
- Computational Fluid Dynamics
- Control Systems
- Flight Simulation
- Nano-Satellite Design
- Orbital Debris Analysis
- Propulsion
- Space Environments and Testing
- Unmanned Aerial Systems

ASSOCIATED CLUBS

- **Advanced Structures Design and Manufacturing Lab** — aero.calpoly.edu/clubs/asdm
- **Aircraft Design and Construction Club** — calpolyadcc@gmail.com
- **American Institute of Aeronautics and Astronautics (AIAA)** — aiaa.calpoly.edu
- **Cal Poly Design/Build/Fly** — twitter: @calpolydbf
- **Cal Poly Space Systems** — cpspacesystems.com
- **CPInterSEP** — aero.calpoly.edu/clubs/cpintersep
- **CubeSat and PolySat** — polysat.org
- **PROVE Lab** — provelab.com
- **Sigma Gamma Tau** — sgt.aero.calpoly.edu

AEROSPACE ENGINEERING GRADUATES

Aerospace Engineering graduates are employed in industries whose workers design or build aircraft, missiles, systems for national defense or spacecraft. Major employers include NASA, The Boeing Co., Lockheed Martin Corp., Northrop Grumman Corp., and United Launch Alliance.

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COLLEGE OF ENGINEERING

B.S. IN AEROSPACE ENGINEERING

Suggested Four-year Academic Flowchart • 2022-2026 Catalog

Updated 7/14/2022

FRESHMAN			SOPHOMORE			JUNIOR			SENIOR		
Fall	Winter	Spring	Fall	Winter	Spring	Fall	Winter	Spring	Fall	Winter	Spring
Aerospace Fundamentals **AERO 121 (2)**	*General Chemistry for Physical Science & Engineering I* **CHEM 124 (4)** * [B1 & B3]		*Introduction to Aerospace Design* **AERO 215 (2)** (AERO 121; MATH 143. Recom: IME 144)	*Mechanics of Materials I* **CE 204 (3)[1]** (ME 211)	*Mechanics of Materials II* **CE 207 (2)[1]** (CE 204)	*Aerospace Fluid Mechanics* **AERO 302 (4)** (ME 212; AERO 300†. Recom: AERO 215; 299 or 301)	*Aerospace Gas Dynamics and Heat Transfer* **AERO 303 (4)** (AERO 299 or 301; 302)	*Aerospace Structural Analysis II* **AERO 431 (4)** (AERO 331)	*Experimental Stress Analysis* **AERO 433 (1)** (AERO 331; 431)	*Aerospace Systems Senior Laboratory* **AERO 465 (1)** (AERO 303; 320; 431; Sr Standing)	
Calculus I **MATH 141 (4)** * [B4]	*Calculus II* **MATH 142 (4)** (MATH 141 w/min C- or Instr. Consent) [B4]	*Calculus III* **MATH 143 (4)** (MATH 142 w/min C- or Instr. Consent) [Area B Elective]	*Calculus IV* **MATH 241 (4)** (MATH 143)	*Aerospace Systems Engineering & Integration* **AERO 220 (1)** (AERO 121)	*Aerospace Thermodynamics* **AERO 299 (4)** (ME 212; AERO 300†. Recom: AERO 215)	*Fundamentals of Dynamics and Control* **AERO 320 (4)** (AERO 300; ME 212)	*Aerospace Structural Analysis I* **AERO 331 (4)** (AERO 300; CE 207 or 208; ME 212)	*Fundamentals of Systems Engineering* **AERO 350 (2)** (AERO 220)	*Aerospace Engineering Professional Preparation* **AERO 460 (1)** (Sr Standing)		
	General Physics I **PHYS 141 (4)** * [Area B Elective]	*General Physics II* **PHYS 142 (4)** (PHYS 141; MATH 142 or 182)	*General Physics III* **PHYS 143 (4)** (MATH 142; PHYS 141. Recom: MATH 241)	*Materials Engineering* **MATE 210 (3)** (CHEM 111, 124, or 127. Recom: concur MATE 215)	*Aerospace Engineering Analysis* **AERO 300 (5)** (AERO 215; MATH 244; ME 211; PHYS 143)	*Experimental Sensors, Actuators & Control* **AERO 321 (1)** (AERO 300. Recom: EE 201 & 251)	**Concentration (4)**	**Concentration (2)**	**Concentration (3)**	**Concentration (4)**	**Concentration (4)**
Introduction to Design & Manufacturing **IME 144 (4)**			*Engineering Statics* **ME 211 (3)** (MATH 241†; PHYS 131 or 141)	*Engineering Dynamics* **ME 212 (3)** (MATH 241; ME 211 or ARCE 211)	*Electric Circuit Theory & Lab* **EE 201 (3)** (MATH 244; PHYS 143) **& EE 251 (1)**	*Statistical Methods for Engineers* **STAT 312 (4)** * [Upper-Division B]		**Concentration (4)**	**Concentration (5)**	**Concentration (3)**	**Concentration (3)**
GE (4) **		**GE (4)** **		*Linear Analysis I* **MATH 244 (4)** (MATH 143)		**Concentration (4)**		**Concentration (4)**		**GE (4)** **	**GE (4)** **
Oral Communication **COMS 101/102 (4)**** [A1]											
Expository Writing **ENGL 133/134 (4)**** [A2]			**GE (4)** **				**GE (4)** **		**GE (4)** **	**GE (4)** **	**GE (4)** **
	Reasoning, Argumentation, & Writing [A3] **COMS 126, 145, ENGL 145, 147, ES 145, PHIL 126, or WGQS 145 (4)**** (Completion of GE A2 with a C- or better) Can be taken anytime between Winter of Freshman and Winter of Sophomore Years.					**Graduation Writing Requirement GWR*** (Students can attempt to fulfill the requirement after 90 earned units; students should complete the requirement before senior year)					
18	16	16	17	14	15	17	16	16	14	16	15

TOTAL: 190

Notes:

MOST GENERAL EDUCATION COURSES CAN BE TAKEN IN ANY ORDER AS LONG AS PREREQUISITES ARE MET

* Refer to current catalog for prerequisites.

**One course from each of the following GE areas must be completed: A1, A2, A3, B2, C1, C2, Lower-Division C Elective, Upper-Division C, D1, Area D Elective, Lower-Division E, and F. Upper-Division C should be taken only after Junior standing is reached (90 units).

Refer to online catalog for GE course selection, United States Cultural Pluralism (USCP) and Graduation Writing Requirement (GWR).

USCP requirement can be satisfied by some (but not all) courses within GE categories: C1, Upper-Division C, D1, D2, Upper-Division D, or E.

†Course can be taken previously or concurrently.

[1] CE 204 & 207 can be replaced by taking 208

Legend:

Course Title
Course # (Units)
(Prerequisite)
[GE Area]

- **Major (49)**
- **Support (53)**
- **Concentration (40)**
- **General Ed. (48)**