

EDUCATION DEGREES: Aeronautical or Astronautical Degree

Keys to Getting an Aeronautical or Astronautical Degree

Whether you go for a four year (Bachelors) or six year (Master's) aeronautical/astronautical degree, your college career is highly dependent on your high school accomplishments. While high school may seem like a great place to let off steam and goof off, the truth is that colleges pay close attention to your high school transcript.

Bad grades, skipping certain classes, and taking an easy route will all count against you.

College isn't easy. Homework is the student's responsibility while pursuing an aeronautical degree and those who are living on their own for the first time may find it hard to concentrate on homework and school over partying with friends. Colleges look specifically for students who are doing well or excelling in high school. Students who took harder high school courses and got decent grades are going to get more college acceptance letters than those who slacked off and took it easy.

Another issue that colleges look into is the “dreaded” SAT score. Anyone will say that SATs are time consuming tedious tests, but they are the best way for colleges gauge student’s abilities regardless of the school he or she attended. Colleges want high SAT scores. For a student desiring an aeronautical degree, math and science are critical. If a student struggles with math, they are most certainly not going to be an excellent choice for this specific program.

Remember that colleges usually require at least two years of a foreign language. In aeronautical fields, Mandarin or Japanese can be helpful due to the number of parts manufactured in China and Japan today. Having this additional skill can help draw a prospective employer's attention. Usually, colleges look for students that participated in extracurricular activities as well.

Finally, those interested in an aeronautical degree must have taken Algebra I, Algebra II, Geometry, and pre-Calculus. These advanced math courses are extremely important to a career in aeronautics. If a student has not completed these courses, they will find their college course load is much heavier because they will be forced to complete these courses plus advanced math programs geared towards aeronautics. Aeronautical and astronautical engineers apply their understanding of basic physical phenomena to design and operate aircraft, missiles, and space vehicles.

What is in an Aerospace or Astronautical Degree

At Civil Air Patrol, the volunteer auxiliary of the U.S. Air Force, we're helping develop tomorrow's aerospace workforce.

Aeronautics is the design, development, analysis, testing, and production of aircraft for military or civilian markets. Astronautics is the design, development, analysis, testing, and production of rockets, spacecraft, and global space/international systems. As an aeronautics and astronautics student, you'll follow a curriculum that explores the fundamentals of engineering science and the technologies and design of flight vehicles. Aircraft and spacecraft design courses integrate many engineering fields to provide a mastery of complete flight systems. Below is a sample course of study from Purdue University, 2011 for majors in Aeronautics and Astronautics. Different schools will have different course requirements, but they will all be similar to Purdue Universities Plan of Study listed below.

Suggested Plan of Study with Aeronautics Concentration

Credit Hours Required for Graduation: 129

Sophomore 3

- (3) AAE 203 (Aeromechanics I)
- (4) MA 261 (Multivariate Calculus)
- (3) MA 265 (Linear Algebra)
- (3) AAE 251 (Intro. Aerospace Design)
- (3) General Education Elective
- (0) AAE 395 (Undergrad Seminar)
- (16)

Sophomore 4

- (3) AAE 204 (Aeromechanics II)
- (1) AAE 204L (Aeromechanics II Lab)
- (3) PHYS 241 (Electricity and Optics)
- (3) ME 200 (Thermodynamics)
- (3) MA 266 (Differential Equations)
- (3) General Education Elective
- (16)

Junior 5

- (3) AAE 333 (Fluid Mechanics)
- (1) AAE 333L (Fluid Mechanics Lab)
- (3) AAE 352 (Structural Analysis I)
- (3) MA 304 (Diff. Eqns. For Engr. & Sci.)
- (3) AAE 301
- (3) General Education Elective
- (0) AAE 395 (Undergrad Seminar)
- (16)

Junior 6

- (3) AAE 334 (Aerodynamics)
- (1) AAE 334L (Aerodynamics Lab) OR
AAE 352L (Structural Anal. I Lab)
- (3) AAE 340 (Dynamics & Vibration)
- (3) AAE 372 (Jet Propulsion Power Plts.)
- (3) AAE 364 (Control Systems Analysis)
- (3) General Education Elective
- (16)

Senior 7

- (3) AAE 421 (Flight Dyn. & Control)
- (1) AAE 364L (Controls Laboratory)
- (3) Technical Elective
- (6) Major or Minor Area Electives
- (3) General Education Elective
- (0) AAE 395 (Undergrad Seminar)
- (16)

Senior 8

- (3) AAE 451 (Aircraft Design)
- (9) Major or Minor Area Electives
- (3) Technical Elective
- (3) General Education Elective
- (18)

Suggested Plan of Study with Astronautics Concentration

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Credit Hours Required for Graduation: 129

Sophomore 3

- (3) AAE 203 (Aeromechanics I)
- (4) MA 261 (Multivariate Calculus)
- (3) MA 265 (Linear Algebra)
- (3) AAE 251 (Intro. Aerospace Design)
- (3) General Education Elective
- (0) AAE 395 (Undergrad Seminar)
- (16)

Sophomore 4

- (3) AAE 204 (Aeromechanics II)
- (1) AAE 204L (Aeromechanics II Lab)
- (3) PHYS 241 (Electricity and Optics)
- (3) ME 200 (Thermodynamics)
- (3) MA 266 (Differential Equations)
- (3) General Education Elective
- (16)

Junior 5

- (3) AAE 333 (Fluid Mechanics)
- (1) AAE 333L (Fluid Mechanics Lab)
- (3) AAE 352 (Structural Analysis I)
- (3) MA 304 (Diff. Eqns. For Engr. & Sci.)
- (3) AAE 301
- (3) General Education Elective
- (0) AAE 395 (Undergrad Seminar)
- (16)

Junior 6

- (3) AAE 334 (Aerodynamics)
- AAE 334L (Aerodynamics Lab) OR
- (2) AAE 352L (Structural Anal. I Lab)
- (3) AAE 340 (Dynamics & Vibration)
- (3) AAE 364 (Control Systems Analysis)
- (3) Technical Elective
- (3) General Education Elective
- (16)

Senior 7

- (3) AAE 439 (Rocket Propulsion)
- (1) AAE 364L (Controls Laboratory)
- (3) Technical Elective
- (6) Major or Minor Area Electives
- (3) General Education Elective
- (0) AAE 395 (Undergrad Seminar)
- (16)

Senior 8

- (3) AAE 440 (Spacecraft Attitude Dyn.)
- (3) AAE 450 (Spacecraft Design)
- (9) Major or Minor Area Electives
- (3) General Education Elective
- (18)

Courtesy: Purdue University and Top Aeronautical Schools.com