



High School Course Descriptions (Grades 9-12)

Course offerings vary by semester and location.

Unmanned Aircraft Systems

Advanced RC Aircraft (Lowry)

Students will design, build, and test an RC aircraft of their own, building on the skills gained during the introductory RC class.

Aircraft Owners & Pilots Association (AOPA) (Lowry & Centennial)

UAS Level 11 Weather, Airspace, Drone Operations

UAS Level 12 Advanced Missions, Advanced Drone Tech, Future of Aerospace

Drone Mechanics (Lowry)

Designed for the person that would like to learn how to do repairs on drones. Learn about tracing circuits, replacing motors, programming flight control boards, soldering, micro-soldering, batteries, connectors, propellers, controls and transmitters.

Drone Flight SIMS (Lowry & Centennial)

Use desktop simulators to learn how to expertly fly drones in a virtual environment. Learn flight and transmitter techniques in a fast-paced environment.

FAA Drone Pilot Part 107 Certification (Lowry & Centennial)

This course will help students prepare for the FAA Part 107 Test, which includes an introduction to Drone Rules & FAA Regulations, as well as the National Airspace System (NAS.) Students will also learn how to read sectional charts and understand airport operations, weather, micrometeorology, and of course, drone flight operations.

Aerospace Science

Aircraft Owners & Pilots Association (AOPA) (Lowry & Centennial)

Level 9 Introduction to Aviation, Aerospace history, Engineering Design

Level 10 Forces of Flight, Aircraft Systems, Aircraft Performance

Level 11 Weather, Airspace Flight Planning

Level 12 Instrument Flight, Advanced Aircraft, Future of Aerospace

FAA Part 61 Ground School (Lowry & Centennial)

Students will learn all of the necessary elements to begin their certification as a Private Pilot. Students learn about navigation, radio communication, airspace, aircraft systems, aerodynamics, cross country flight planning, weather and more.

Flight Simulators (Lowry & Centennial)

Students will use the desktop version of Microsoft Flight Simulator to learn basic flight techniques, air traffic control, and navigation. This class will provide a realistic environment where students can engage in virtual flying, allowing them to apply theoretical knowledge, make real-time decisions, and build foundational skills essential for aviation.

RANS-S21 Aircraft Build (Lowry)

The RANS Build is a culminating class based on a high level of tool skills attainment. Students work under the guidance of instructors and volunteers to build an actual aircraft. Students are placed in this class at the discretion of the instructor.

Restoration Technology (Lowry)

In this class, students will develop their technical knowledge and focus on aerospace-themed technologies and some specific skills, like 3D printing and additive manufacturing in general. Students will help the museum develop exhibits and replacement parts, while also working on special projects.

GEN1002 - Aviation Science (Lowry)



This course will continue the study of electrical concepts to include batteries, and additional information on reading and interpreting aircraft electrical circuit diagrams that include digital and solid-state circuits and logic functions. The students will perform laboratory experiments relating to electrical and electronic circuits. Students study aircraft drawings and make drawings of aircraft parts and repairs to aircraft parts. This course will also contain a detailed study of aviation materials and processes, that include the basic knowledge and skills in the use of basic mechanics hand tools, hardware and safety methods, principles of nondestructive testing including eddy current, ultrasonic, magnetic particle, and dye penetrant procedures, and the student perform laboratory experiments in these procedures. Students will use precision measurement equipment including micrometers, calipers, and dial indicators. Students will learn about and fabricate the various types of fluid lines and fitting used in the aircraft. **Prerequisite: Successful completion of GEN1001**

GEN1001 - Basic Electricity (Lowry)



In this course, students will study scientific laws and theories of electricity and its application to aircraft systems, components, and circuits. Concepts studied include fundamentals of magnetism, DC circuits, and AC circuits. In addition, students study the use of electrical measuring instruments, multimeters, and basic troubleshooting procedures. Students will perform analyses of electrical circuits and determine resistance, current, voltage, inductance, capacitance, impedance and power. Also, included in this course is the study of electrical schematics and their application to aircraft. **Prerequisite: None.**

Watt's Up (Lowry)

Investigate the fundamental principles that power our modern world. Learn the basics of circuits, voltage, current, and resistance while gaining hands-on experience in building and troubleshooting simple electronic projects in this introduction to the world of electronics.

Aerospace Engineering

3D Modeling/Visualization (Lowry & Centennial)

Students will use 3D Modeling software such as Blender, Aerialod, and Terragen 4 to produce a wide range of visual images, while learning about the process NASA and other agencies use to imagine faraway exoplanets.

Creative Rocketry (Lowry)

Learn all about the science and history of rocketry while building different types of rockets to understand flight design and aerodynamics. This class will include direct mentoring with Lockheed-Martin professionals as well as the opportunity to launch your creations at the park.

Introduction to Python and Data Analysis for Scientific Research (Lowry)

How do scientists *actually* do research? By using computer programming to create models and analyze data! Learn the basics of how to code and use science with the programming language Python. Projects in this class will largely be centered around space-related topics, but the skills learned apply to a broad number of science disciplines.

LEGO Robotics (Lowry)

Learn the basics of LEGO EV3 and Spike Prime coding and robotics. Students will participate in designing and programming LEGO bots to meet a variety of engineering design challenges.

Science Communication (Lowry)

From science fiction to popular news to research papers, scientists are constantly trying to think of ways to communicate science to the public. In this class we will evaluate how science is communicated to the public, and determine what methods we think are effective. We will also learn how to *be science* communicators, both through fiction and non-fiction.

Space Mission Design (Lowry)

Are you inspired by missions like the Mars Rovers, Europa Clipper, and Artemis Missions? In this class we will explore the various science and engineering that goes into designing a state-of-the-art space mission. Students will conceptualize and write mock-proposals for space missions that they imagine.

General Aviation Knowledge

Aerospace Cinema (Lowry)

Explore the intersection of film and 3D design with an emphasis on production. You'll learn how to craft flight themed films while gaining practical experience in both filmmaking and 3D design. From initial concepts to final production, this course guides you through the essentials of visual storytelling.

Aerospace History (Lowry & Centennial)

An in-depth exploration of the triumphs and setbacks that have shaped our quest to conquer the skies and reach the stars. From pioneering flights and groundbreaking technological advancements to critical failures and lessons learned, you'll gain a comprehensive understanding of how historical events have influenced modern aerospace achievements