FERNBANK SCIENCE CENTER

www.fernbank.edu/advancedstudies.html

FALL 2022 COURSES	SPRING 2023 COURSES
AP Chemistry AP Physic C: Mechanics Ecosystems Alive! Engineering Applications* Epidemiology Forensic Science	AP Chemistry (continued from fall) AP Physics C: Electricity & Magnetism (continued from fall) Animal Science: Equine Studies Astronomy: Solar System Studies Engineering Applications* * Same course both semesters, choose one

COURSE DESCRIPTIONS Fall 2022

ADVANCED PLACEMENT (AP) CHEMISTRY

AP Chemistry is a full-year college-level chemistry course designed for students who intend to major in a science-related field. This course is designed to be the equivalent of the general chemistry course usually taken during the first college year. Students will attain a deep understanding of fundamentals and a reasonable competence in dealing with chemical problems. The course emphasizes chemical calculations and the mathematical formulation of principles. A primary objective of the course is to prepare students for the AP Chemistry exam.

Instructor: Deayne Johnson
Prerequisites: Biology, Chemistry (recommended)
Credit: 1 Carnegie Unit (0.5 each semester)
Semester Offered: Fall 2022 and Spring 2023 (both semesters required)
Schedule: This course meets on Mondays and Thursdays from 3:30 p.m. – 6:00 p.m. **This is a hybrid course; students will meet online once a week and in person once a week.** More detailed scheduling information will be provided on the first day of class.

ADVANCED PLACEMENT (AP) PHYSICS C: MECHANICS

AP Physics C: Mechanics is a one semester course in calculus-based physics for prospective science and engineering majors. Students will explore concepts such as kinematics; Newton's laws of motion, work, energy, and power; systems of particles and linear momentum; rotation; oscillations; and gravitation. Our course emphasizes experimental work and problem solving and can give successful students a year of college credit. ***Please note that students must register for both the fall (Mechanics) and spring (Electricity & Magnetism) courses.***

Instructor: Mr. Michael Dowling
Prerequisites: Calculus (concurrently), Physics (recommended)
Credit: 1.0 Carnegie Unit
Semester Offered: Fall 2022 (Must also register for AP Physics C: Electricity and Magnetism in the spring)
Schedule: This course meets on Mondays and Thursdays from 3:30 p.m. – 6:00 p.m. **This is a hybrid course; students will meet online twice a week and in person twice a month.** More detailed scheduling information will be provided on the first day of class.

NOTE: Course offerings and schedules may be subject to change due to enrollment.

ADVANCED PLACEMENT (AP) PHYSICS C: ELECTRICITY & MAGNETISM

AP Physics C: Electricity & Magnetism is a one semester course in calculus-based physics for prospective science and engineering majors. Students will explore concepts such as electrostatics, conductors, capacitors and dielectrics, electric circuits, magnetic fields, and electromagnetism. Our course emphasizes experimental work and problem solving and can give successful students a year of college credit. *Please note that students must register for both the fall (Mechanics) and spring (Electricity & Magnetism) courses.*

Instructor: Mr. Michael Dowling

Prerequisites: Calculus (concurrently), AP Physics C: Mechanics (offered fall semester)

Credit: 1.0 Carnegie Unit

Semester Offered: Spring 2023 (Must register for AP Physics C; Mechanics in the fall semester)

Schedule: This course meets on Mondays and Thursdays from 3:30 p.m. – 6:00 p.m. **This is a hybrid course; students will meet online twice a week and in person twice a month.** More detailed scheduling information will be provided on the first day of class.

ECOSYSTEMS ALIVE!

Ecosystems Alive! is a one semester, field-based course. A variety of ecosystems around the Atlanta area will be explored. Students will use a variety of scientific tools to explore the ecology of animals, plants, wetlands, rivers, forests and more! If you have an interest in a career in the natural sciences, then this course is an excellent introduction into understanding how and why scientists study ecosystems.

Instructor: Mr. Christopher Showalter

Prerequisite: Biology

Credit: 1 Carnegie Unit

Semester Offered: Fall 2022

Schedule: This course meets on Mondays and Thursdays from 3:30 -5:30 p.m. **This is a hybrid course; students will meet in person once a week and online once a week.** One Saturday field trip is required. More detailed scheduling information will be provided on the first day of class.

ENGINEERING APPLICATIONS

The Engineering Applications is a one-semester course facilitates hands-on learning through the implementation of the Engineering Design Process. Students will work with innovative technologies to prototype solutions for local community and environmental challenges. Students will be assembled in engineering project groups to work on the issue they collectively choose to address. There will be opportunities during the duration of the semester to work at Fernbank Science Center and at Georgia Institute of Technology. At the end of the semester, project groups will present their work to a public audience.

Instructor: Mr. Marques Herrington

Prerequisite: Physical Science or Physics

Credit: 1.0 Carnegie Unit

Semester(s) Offered: Fall 2022 and Spring 2023 (same course each semester, choose one)

Schedule: This course will meet **in person** on Tuesdays and Thursdays from 3:30 – 5:00 p.m.

EPIDEMIOLOGY

In this semester long course, students will learn about diseases and how they impact society. Students will also discuss measures that public health officials take in order to trace, predict and stop the spread of a disease. Specific diseases will be used as case studies in learning how to trace the spread of the disease and how to stop its transmission.
Instructor: Ms. Susan Davis
Prerequisite: Biology
Credit: 1 Carnegie Unit
Semester(s) Offered: Fall 2022
Schedule: This course meets on Tuesdays and Thursdays from 3:30 – 5:30 p.m. **This is a hybrid course; students will meet in person once a week and online once a week**. More detailed scheduling information will be provided on the first day of class.

FORENSIC SCIENCE

Forensic Science is a one semester course. Students will examine the tools and scientific techniques used to solve crimes. This class will have a primary focus on the chemical aspect of forensics and crime investigations. Techniques include DNA, blood splatter, arson and explosive analysis. Field trips include visits to the GBI and Medical Examiner's Office.
Instructor: Mr. Adrian Elliott
Prerequisite: Chemistry
Credit: 1 Carnegie Unit
Semester Offered: Fall 2022
Schedule: This course meets on Tuesdays and Wednesdays from 3:30 – 5:00 p.m. **This is a hybrid course; students will meet in person once a week and online once a week.** More detailed scheduling information will be provided on the first day of class.

COURSE DESCRIPTIONS Spring 2023

ANIMAL SCIENCE: Equine Studies

This one-semester course is for anyone interested in pre-vet with an emphasis on horses as offered under the broader classification of animal science. Field experiences with horse care, nutrition, hoof, and veterinary care are just some of the field experiences available. Classroom instruction will support the field experiences and expand on areas that we can't experience in person. Other animals will also be studied to broaden the experience range of animal science.
Instructor: Susan Davis
Prerequisite: Biology
Credit: 1.0 Carnegie Unit
Semester Offered: Spring 2023
Schedule: This course meets on Tuesdays & Thursdays from 3:30 – 5:30 p.m. Some field trips will occur during the Tuesday, Thursday time frame, but those that require driving to the stable for hands-on activities will be on Saturdays. The weekly contact hours will be adjusted to accommodate the hours spent on the field trip experiences. More detailed scheduling information will be provided on the first day of class.

NOTE: Course offerings and schedules may be subject to change due to enrollment.

ASTRONOMY: Solar System Studies

This one semester course provides students with hands-on experience in the foundations of astronomy using Fernbank Science Center's 0.9-meter (36in) telescope and Zeiss planetarium. Over the course of the semester, students will learn about the properties of light, the nature of the Sun and Moon, characteristics of planets, comets, and asteroids, learn to describe the heavens in terms of the celestial sphere and identify bright stars, constellations, and planets in the evening sky. There will be a special focus on astronomical instrumentation and visual data collection wherein students will build their own telescopes and use state-of-the-art imaging technology to collect their own data.
Instructor: Lauren Albin
Prerequisite: Physical Science, Physics, or Chemistry (recommended)
Credit: 1.0 Carnegie Unit
Semester Offered: Spring 2023
Schedule: This course meets on Tuesdays & Thursdays from 3:30 – 5:30p.m. **This is a hybrid course; students will meet in person once a week and online once a week**. There will be a minimum of three evening observing sessions that will take the place of regular class time. More scheduling information will be provided on the first day of class.

ENGINEERING APPLICATIONS

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Instructor: Mr. Marques Herrington
Prerequisite: Physical Science or Physics
Credit: 1.0 Carnegie Unit
Semester(s) Offered: Fall 2022 and Spring 2023 (same course each semester, choose one)
Schedule: This course will meet **in person** on Tuesdays and Thursdays from 3:30 – 5:00 p.m.

NOTE: Course offerings and schedules may be subject to change due to enrollment.