

Glen Cove Science Department

Each year, students should be able to demonstrate greater capacity for connecting knowledge across, and between, the physical sciences, life sciences, earth and space sciences, and engineering design. During grades 9–12, your child will begin to form deeper connections between concepts and skills previously learned in grades 6–8, such as evaluating methods for collecting data, evaluating limitations of models based on evidence, and creating algorithms to solve problems. Students will develop a deeper understanding of science beyond memorizing facts and will experience similar scientific and engineering practices as those used by professionals in the field.

Current Graduation Requirements:

- 3 Science Credits [1 Credit Life Science, 1 Credit Physical Science, 1 Credit Life or Physical]
- Regents Diploma: One Science Regents Examination
- Advanced Regents Diploma: One Life Science and one Physical Science Exam

New York State students have access to the local diploma, the Regents diploma, and the Regents diploma with advanced designation. To earn a New York State high school diploma, students must meet both the credit requirements and the assessment requirements. Schools and districts may create diploma requirements in addition to those required by the New York State Education Department.

Grade 7

Grade 8

Grade 9

Grade 10

Grade 11

Grade 12

Post - Secondary

Please note this flowchart reflects the "typical" course sequence, however, we strive to meet each individual students' needs. If you have questions, please do not hesitate to reach out.
vcurtis@glencoveschools.org

New to District

General Science

- Home Language

NYSSLS HS Biology

- Regents/ICT
- ENL
- Home Language

NYSSLS Earth & Space Science

- Regents/ICT
- ENL

AP Physics

AP Chemistry

Nursing

Radiology/Sonogram Technician

Medical Laboratory Technician

Engineering

Computer Science/Engineering

Pre-Med | Veterinary Medicine

Education

Aviation

Forensics Science

Toxicology

Oceanology/Marine Biology

Respiratory Care

Science 7

NYSSLS MS Biology

- Science 8

NYSSLS HS Biology

- Honors

NYSSLS HS Biology

- Regents/ICT
- ENL
- Home language

NYSSLS Earth & Space Science

- Regents

Chemistry

- Regents
- Explorations

Physics

- Regents
- Conceptual

AP Biology

AP Psychology

AP Environmental

Electives

AP ENVES

AP Environmental & Regents Earth & Space Sciences

NYSSLS Earth & Space Science

- Honors/ICT

Chemistry

- Honors
- Regents

Physics

- Honors*
- Regents

*Dual Enrollment, LIU

May be taken concurrently with additional APs/Honors/Electives:

Astronomy, College Forensics, College Health Science Professions, College Human Anatomy and Physiology, Human Anatomy & Physiology, Forensics I/II, Marine Biology I/II, Mechatronics I/II, Scientific Research I/II/III, Environmental Science, Horticulture & Hydroponics

Regents Course Descriptions

NYSSLS Regents Biology OR NYSSLS Regents Earth & Space Sciences

415 LIVING ENVIRONMENT/BIOLOGY – 1 Credit. This is a one-year course that provides students with a basic understanding of biological processes and generalizations. Topics include unity and diversity in living things, maintenance in living things, human physiology, reproduction and development, genetics, evolution, and ecology. Course meetings alternate by day between single and double periods. Laboratory requirement: Successful completion of a minimum of 1,200 laboratory minutes and a written report of each laboratory exercise. Assessment: Various assessments will be used, including, but not limited to, laboratory reports, projects, tests, class participation, homework, and the Regents examination.

← **Regents Course**
*Successful completion of 8th
grade non-regents Biology*

★ **407 EARTH SCIENCE/EARTH AND SPACE SCIENCES HONORS – 1 Credit. Suggested Criteria: Successful completion of Living Environment, as well as passing the Regents exam for that course.** This is a rigorous one-year course on the physical materials making up Earth and the surrounding environment. Nine core topics and at least two additional optional topics are covered from the New York State Regents Earth Science Syllabus. Class meetings alternate by day between single and double periods. Laboratory requirement: Completion of a minimum of 1,200 laboratory minutes and a written report of each laboratory exercise. In addition, considerable emphasis is placed on data analysis and problem-solving. Assessment: Various assessments will be used, such as laboratory reports, projects, tests, class participation, homework and the Regents examination.

← **Regents Course, Honors**
*Successful completion of 8th
grade Regents Biology*

452 ADVANCED PLACEMENT ENVIRONMENTAL EARTH SCIENCE – 1 Credit. Suggested Criteria: Successful completion of 8th grade Regents Living Environment, as well as passing the Regents exam for that course. Successful completion of 8th grade Algebra I, as well as passing the Regents exam for that course. The goal of the course is to provide students with the scientific principles, concepts and methodologies needed to understand the interrelationships between people and their environment, as well as to identify and analyze environmental problems, both natural and human-made, to assess the risks associated with these problems and to identify solutions for resolving or preventing them. Class meetings are a double-period every day. The course is comparable to a one-semester introductory college course and has a significant laboratory/fieldwork component. Extensive outside reading and independent study are expected. Assessment: Various assessments will be used, such as tests, laboratory reports, projects, class participation, homework, and a final examination/project. The student must take the Advanced Placement examination in Environmental Science and the Earth Science Regents Exam.

← **AP & Regents Course**
*Successful completion of 8th
grade Regents Biology & 8th
grade Regents Algebra*

Science Electives

Horticulture and Hydroponics

HORTICULTURE AND HYDROPONICS - .5 Credit. Suggested Criteria: Successful completion of one year of Regents science, as well as passing the Regents exam for that course. Can be taken concurrently with a laboratory science course. In the Hydroponics elective course, students will learn how to design, build, and maintain hydroponic systems, gaining a deep understanding of plant biology, nutrient cycles, and sustainable agricultural practices. They will experience hands-on, project-based learning that integrates science, technology, and engineering to solve real-world problems related to food production and environmental conservation.



Astronomy

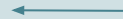
449 ASTRONOMY – .5 Credit. Suggested Criteria: Successful completion of one year of Regents science, as well as passing the Regents exam for that course. Can be taken concurrently with a laboratory science course. This is an in-depth study of the solar system, including the sun, planets and the moons thereof, asteroids, comets, and local space exploration, as well as other celestial phenomena, our galaxy, and the universe. Astronomical theories, historical perspectives, galactic movement, and stellar positions, as well as other astronomical data, will be considered. Some post-school day field experiences are possible.

Forensics

451 FORENSIC SCIENCE I – .5 Credit. Suggested Criteria: Successful completion of one year of Regents science, as well as passing the Regents exam for that course. Can be taken concurrently with a laboratory science course. The course introduces skills of forensic science. Investigations in fiber analysis, fingerprinting and blood sample analysis will assist students in problem-solving. This course is strongly recommended for students who are considering a career in a health-related field or police science. Simulated crime scene investigations will take place. Assessment: Various assessments will be used, such as class participation, homework, tests, projects and a final examination/project.

457 FORENSIC SCIENCE II – .5 Credit. Suggested Criteria: Successful completion of one year of Regents science, as well as passing the Regents exam for that course. Can be taken concurrently with a laboratory science course. The Forensic Science II class will expand on materials and skills explored in the elective, along with the exploration of several new topics. Where the first course focused on the forensic analysis of evidence collected from the crime scene, the second course will encourage students to begin drawing conclusions about their findings and more deeply explore investigative techniques. Examples of new topics that will be covered include forensic psychology, profiling and forensic anthropology.

442 COLLEGE FORENSICS – .5 Credit. Suggested Criteria: Successful completion of one year of Regents science, as well as passing the Regents exam for that course. Can be taken concurrently with a laboratory science course. Recent advances in scientific methods and principles have had an enormous impact upon law enforcement and the entire criminal justice system. In this course, scientific methods specifically relevant to crime detection and analysis will be presented. Emphasis is placed upon understanding the science behind techniques used in evaluating physical evidence. Topics include blood analysis, organic and chemical toxicology, fiber comparisons, paints, glass compositions and fragmentation, fingerprints, soil comparisons and arson investigation, among others. This honors-weighted dual enrollment course is linked to the Long Island University High School Scholars Program. Students have the opportunity to earn three college credits for the course. (Please see the Long Island University Program description under the Specialty Programs section for further details).



LIU Dual Enrollment

Marine Biology

470 MARINE BIOLOGY I – .5 Credit. Suggested Criteria: Successful completion of one year of Regents science, as well as passing the Regents exam for that course. Can be taken concurrently with a laboratory science course. This course deals with various scientific disciplines used to study the ocean. This course is designed for the student seeking to gain a basic understanding of the physical, chemical and biological processes of the marine environment.

471 MARINE BIOLOGY II – .5 Credit. Suggested Criteria: Successful completion of one year of Regents science, as well as passing the Regents exam for that course. Can be taken concurrently with a laboratory science course. This course will study the way in which marine ecosystems and the organisms that live in them have changed and are changing in recent times. It will focus on the impact of humans on the marine environment and the importance of the marine environment on human existence. Finally, this course will provide a perspective that encourages marine eco-friendly practices and the ways in which the marine environment can be researched and studied.

Environmental Science

455 ENVIRONMENTAL SCIENCE – 1 Credit. Suggested Criteria: Successful completion of one year of Regents science, as well as passing the Regents exam for that course. Emphasis will be placed on the biotic environment required by a variety of living things and their direct effect on other living things, including the human condition and environmental conditions that exist. Economic, social, political, ethical and legal aspects of environmental concerns will be explored, with an emphasis on local concerns. Laboratory requirements: Teacher demonstrations, field trips, laboratory activities and reports will vary according to the topic being studied. Assessment: Various assessments will be used, such as tests, reports, projects, class participation, homework and a final examination/project.

ENL Environmental Science

455 ENVIRONMENTAL SCIENCE – 1 Credit. Suggested Criteria: Successful completion of one year of Regents science, as well as passing the Regents exam for that course. Emphasis will be placed on the biotic environment required by a variety of living things and their direct effect on other living things, including the human condition and environmental conditions that exist. Economic, social, political, ethical and legal aspects of environmental concerns will be explored, with an emphasis on local concerns. Laboratory requirements: Teacher demonstrations, field trips, laboratory activities and reports will vary according to the topic being studied. Assessment: Various assessments will be used, such as tests, reports, projects, class participation, homework and a final examination/project.

Mechatronics

★ **404 INTRODUCTION TO MECHATRONICS HONORS – 1 Credit.** Suggested for students who have a strong interest in engineering, computer science, or robotics. This honors-weighted elective will provide students with the opportunity to learn about various engineering disciplines, including mechanical, electrical, and computer engineering. Students will then be able to apply theory, principles, and engineering design to solve hands-on problems involving different robotics components, including Lego Mindstorms and the Haddington Dynamics Dexter robot. As part of the course, students will have access to participate in local hackathons where they can showcase their accomplishments in coding and robotics.

★ **408 MECHATRONICS II HONORS – 1 Credit.** **Prerequisite: Introduction to Mechatronics Honors.** Suggested for students who have completed Introduction to Mechatronics and would like to apply their learning to engage in independent projects and enter into competitions to showcase their work.

Scientific Research



440 SCIENCE RESEARCH LITERACY HONORS – .5 Credit. Prerequisite: 9th and 10th grade students only.

This course will introduce students to methodologies of research to provide students with skills needed to ultimately conduct an independent research investigation. This course is intended to prepare students for science research undertaken through high school and research internships outside of high school. Students will read and analyze research journals. They will also learn the basic skills of scientific investigation and scientific writing by doing their own research project. The course culminates in writing a term paper in the form of a scientific article. Students' research reports will be submitted to various science competitions i.e., Long Island Science and Engineering Fair, Long Island Science Congress, Northwell Medical Marvels, or Toshiba Exploravision.



441 SECOND-YEAR SCIENTIFIC RESEARCH HONORS – .5 Credit. Prerequisite: Successful completion of Science Research Literacy.

This course will continue the work from the Science Research Literacy course in terms of methodologies of research. During the first semester, students will create research reports that can be submitted to science competitions, i.e., Long Island Science and Engineering Fair, Long Island Science Congress, Northwell Medical Marvels or Toshiba Exploravision. In their second semester, students will find scientists at local university laboratories working in areas of interest to them to serve as project mentors.



443 THIRD-YEAR SCIENTIFIC RESEARCH HONORS – .5 Credit. Prerequisite: Successful completion of Second-Year Scientific Research Honors. This course will continue the work from the Second-Year Scientific Research Honors course in terms of competitions and methodologies of research. During the first semester, students will connect with outside mentors to work in areas of interest to them and to serve as project mentors. In their second semester, students work on the research projects and make a plan to continue this work during the summer. In class, students will work closely with the teacher to fine-tune a research proposal and begin the work of compiling results into a preliminary research paper.



443 FOURTH-YEAR SCIENTIFIC RESEARCH HONORS – .5 Credit. Prerequisite: Successful completion of Third-Year Scientific Research Honors. This course will continue the work from the Third-Year Scientific Research Honors course in terms of competitions and methodologies of research. Students complete work on their individual independent research projects. The final product of the research work is the original scientific research paper. During the fall semester, students will submit their papers to science competitions e.g.: Siemens-Westinghouse, Intel, New York Academy of Sciences (NYAS), Junior Science and Humanities Symposium (JSHS). During the spring semester, students will present a research seminar, and provide assistance to sophomore and junior research students.

AP ENVES

452 ADVANCED PLACEMENT ENVIRONMENTAL EARTH SCIENCE – 1 Credit. Suggested Criteria:

Successful completion of 8th grade Regents Living Environment, as well as passing the Regents exam for that course. Successful completion of 8th grade Algebra I, as well as passing the Regents exam for that course. The goal of the course is to provide students with the scientific principles, concepts and methodologies needed to understand the interrelationships between people and their environment, as well as to identify and analyze environmental problems, both natural and human-made, to assess the risks associated with these problems and to identify solutions for resolving or preventing them. Class meetings are a double-period every day. The course is comparable to a one-semester introductory college course and has a significant laboratory/fieldwork component. Extensive outside reading and independent study are expected. Assessment: Various assessments will be used, such as tests, laboratory reports, projects, class participation, homework, and a final examination/project. The student must take the Advanced Placement examination in Environmental Science and the Earth Science Regents Exam.