

River Dell Regional School District

230 Woodland Avenue

River Edge, NJ 07661

www.riverdell.org



**Syracuse University
Project Advance
Chemistry 113
Forensic Science**
Grades 11-12
5 credits/full year
4 college credits possible

PREREQUISITE:
Chemistry

SUPA Forensic Science (CHE 113) is focused upon the application of scientific methods and techniques to crime and law. Recent advances in scientific methods and principles have had an enormous impact upon law enforcement and the entire criminal justice system. This course is intended to provide an introduction to the understanding of the science behind crime, and to historical or civil evidence detection. Scientific methods specifically relevant to crime detection and analysis will be presented, with emphasis placed upon the techniques used in the evaluation of physical evidence. Case studies will be used to examine how physical evidence is used in the legal arena.

Historical cases will be studied to authenticate the technological procedures used in crime investigation. Students will utilize the chemistry techniques learned in the laboratory, biological applications, and a note of physics to explore the techniques of evidence examination. Experts in the field will contribute to the course throughout the year. Topics include fingerprints, hair and fibers, microscopic analysis, soils, glass refractive indexes, blood analysis, DNA fingerprinting, paints, arson, ballistics, and organic analysis, along with others. Readings may include a novel study. Laboratory investigations will include techniques typically used in forensic investigations.

A tuition fee is payable to Syracuse University.

**Syracuse University
Project Advance
Physics 101
Introductory Physics**
Grades 11-12
5 high school credits/
full year
4 college credits

PREREQUISITE:
Honors Algebra 2 w/Trig
or
80% or better in Advanced
Algebra 2 w/Trig

Physics 101-102 (PHY 101-102) is the one-year introductory, non-calculus physics sequence offered at Syracuse University. This algebra-based course includes labs and provides the necessary physics background for health professionals and others who need physics but are not required to take a calculus-based course.

The grades for each of the two courses will be based on several periodic exams and a comprehensive midterm and final examination. Performance on the labs counts as 25% of the total grade.

COURSE OUTLINE Physics 101

The course treats the traditional topics in Mechanics: Kinematics, Newton's Laws, Circular Motion, Gravity and Planetary Motion, Work, Energy, Momentum, Rotational Motion, Vibrations, and Kinetic Theory. Problem solving and conceptual understanding are both stressed.

A tuition fee is payable to Syracuse University.

River Dell Regional School District

230 Woodland Avenue

River Edge, NJ 07661

www.riverdell.org



Syracuse University Project Advance Earth Science 203

Earth System Science

Grades 11-12

5 high school credits/
full year

4 college credits

Earth System Science (EAR 203) illustrates the interconnectedness of biologic, hydrologic, atmospheric, and geologic processes in shaping our planet. This new approach to geology reflects a more integrated view towards the study of Earth. In today's world, with increasing global population, the threat of global warming and a growing demand for raw materials and energy, a basic understanding of the Earth system is more important than ever. Students taking this course will learn how the basic elements of the Earth interact through various linkages and feedbacks that operate over timescales from a few years to millions of years. A major goal of this course is to supply students with the basic, yet comprehensive, view of the Earth system necessary for evaluating information and making decisions about relevant environment issues.

Topics covered: Global change over different timescales, Introduction to systems, Global energy balance and the Earth's greenhouse, Atmospheric circulation, Ocean circulation, Circulation of the solid Earth, Continental landforms, Nutrient cycling, The origin of the Earth and life, Long-term climate regulation, Global change over the last 2.5 Ma-present.

EAR 203 is recommended for students who wish to pursue a major program in environmental studies, whether from the physical, biological or engineering perspective, as well as geology. It is also appropriate for students with a strong science background who plan to major in a non-science discipline and seek a course that will fulfill general education requirements. **A tuition fee is payable to Syracuse University.**

SUPA Cyber Security

Grades 11-12

5 credits/full year

3 college credits

Tuition Fee

PREREQUISITE:
Computer Systems
and Networking

Intro to Cyber Security (CPS 155)

SUPA Cyber Security covers implementation and monitoring of security on network and computer systems including how to identify and protect against security threats such as hackers, eavesdropping and network attacks, as well as the basic cryptography. Hands-on labs provide practice in the configuration and mitigation of system vulnerabilities. The curriculum is based on the SUPA Cyber Security course which incorporates the CompTIA Security and Certification guidelines. Juniors and seniors are Eligible to enroll in SUPA and will earn 3 college credits upon successful completion of the course.