

SCIENCE ELECTIVES

0780 COMPUTER SCIENCE AND SOFTWARE ENGINEERING

PREREQUISITE: ONE UNIT OF REGENTS SCIENCE AND ALGEBRA I AND GEOMETRY

GRADES 11-12 ♦ FULL YEAR - 1 UNIT

This course is designed to introduce students to the world of programming. Students create apps for mobile devices, automate tasks in a variety of languages, find patterns in data, and interpret simulations. Students work in teams to develop computational thinking, solve problems and utilize computational tools that foster creativity. Students practice problem solving with structured activities and progress to open-ended projects and problems that require them to develop planning, documentation, communication, and other professional skills. Problems allow for various levels of entry whether students are novice or developing program writers. Each unit focuses on one or more computationally intensive career paths. The course invites students to consider the societal impact of computing, both present and future.

0340 CRIMINALISTICS

PREREQUISITE: LIVING ENVIRONMENT: BIOLOGY R, PHYSICAL SETTING: CHEMISTRY R, PHYSICAL SETTING: EARTH SCIENCE R

GRADES 11-12 ♦ SEMESTER - ½ UNIT

Criminalistics will introduce students to the role of forensic science in criminal investigations. In order to merge theory with practice, a hands-on approach will be taken in the presentation of course materials and laboratories. The major topics of study may include: physical properties of evidence, hair, fiber, and paint analysis; fingerprints, tool marks and other impressions; forensic serology and DNA.

0344 HUMAN ANATOMY AND PHYSIOLOGY I (FALL)

PREREQUISITE: LIVING ENVIRONMENT: BIOLOGY R OR 3R

GRADES 10-12 ♦ FALL SEMESTER - ½ UNIT

This course examines the structure and function of the human body and mechanisms for maintaining homeostasis within the body. It includes the study of basic chemistry, cells, tissues, and the integumentary, skeletal, muscular, nervous, and endocrine systems. Activities include microscope work, case studies and dissection. It is intended as a survey course for students who are interested in pursuing careers in medicine or allied health fields.

0345 HUMAN ANATOMY AND PHYSIOLOGY II (SPRING)

PREREQUISITE: LIVING ENVIRONMENT: BIOLOGY R OR 3R

GRADES 10-12 ♦ SPRING SEMESTER - ½ UNIT

This course is a continuation of Human Anatomy and Physiology I. The cardiovascular, lymphatic, digestive, respiratory, urinary, and reproductive systems, as well as the concepts of immunity and development are included. Activities include microscope work, case studies and dissection. It is geared toward students who are interested in pursuing careers in medicine or allied health fields.

0347 ASTRONOMY

Blended Learning Course

PREREQUISITE: PHYSICAL SETTING: EARTH SCIENCE R

GRADES 10-12 ♦ SEMESTER - ½ UNIT

[MHS: OFFERED IN 2016-2017 AND 2018-2019 SHS: OFFERED 2017-2018 AND 2019-2020]

This is a semester long descriptive course for the science student with an interest in Astronomy. The course begins with a look at the Universe and our place in it, followed by a study of light and telescopes. The remaining topics include: relativity, cosmology, the study of the possibility of life elsewhere in the

universe, galaxies, star life cycles and planetology. It concludes with a discussion of Interplanetary and Interstellar space travel. This course is taught as a blended learning course, using an online learning management system. The class meets 4 periods in a 5 period week. In lieu of the 5th class meeting students are required to complete night observation work as assigned by the teacher.

0348 OCEANOGRAPHY

PREREQUISITE: PHYSICAL SETTING: EARTH SCIENCE R AND LIVING ENVIRONMENT: BIOLOGY R PRIOR TO OR CONCURRENT

GRADES 10-12 SEMESTER - ½ UNIT

[SHS: OFFERED IN 2016-2017 AND 2018-2019 MHS: OFFERED 2017-2018 AND 2019-2020]

A semester long descriptive course designed for the science student with an interest in Oceanography. The course begins with a study of the history and development of Oceanography. Physical, chemical and geological aspects are explored. The course finishes with a study of Marine Biology. We spend a day on Seneca Lake doing oceanographic research.