



Art: CHS Art History (ARTH 1018- La Roche College)

Available in grade 12

3 college credits

This course provides students the opportunity to examine, in depth, the history of art starting with the European Renaissance to modern day. Students will explore the work of artists from the major art movements to better understand the social and historical context in which art was being created. Art History will be a writing intensive course and will require proof of understanding through research papers, projects and four exams throughout the year. This course will familiarize students with the historical context in which art has transformed throughout time and teach students to be well versed in the visual communication of art.

Art: Introduction to Art

Available to grades 9, 10 11 & 12

Students taking Introduction to Art will have the opportunity to explore and create using a variety of mediums. Throughout the year students will be introduced to contemporary artist as well as learn the styles and movements from the historical artist. On top of creating unique works of art, students will be learning how to critically analyze and discuss their own work and their fellow classmate's work through a critique held at the end of a project. This class isn't just for creating, students will learn valuable skills in communication, imagination and problem solving that is transferable to other subjects and future careers. This course will give students the tools to develop their own artistic persona while building strong technical skills in the various mediums we work with.

Art: Ceramics/Sculpture

Available to grades 10, 11 & 12

(pre-requisite: Introduction to Art)

This year-long course will provide students an in depth study of sculpture and lead students into the art of ceramics. Students will have the opportunity to work with a variety of materials to build and create original art work. Using the elements and principles of design, students will learn the basic technique of sculpture while discovering their creative and expressive side. Students will work individually on projects and have numerous chances to create art in a group atmosphere. Project critiques after every assignment helps students learn how to analyze and discuss their peer's art while providing positive and constructive feedback. Using artist from history and present day will help give students an insight on how art has transformed throughout the years and how their art has progressed within the class. Ceramics and Sculpture will provide students an in depth study of the various three dimensional art forms while showing students that creativity isn't bound to a flat piece of paper.

Art: Drawing and Painting

Available to grades 10, 11 & 12

(pre-requisite: Introduction to Art)

This year-long course will study in depth various forms of drawing and prepare students with the proper technique to begin painting. Painting and Drawing will teach students the elements and principles of art while unleashing their inner creativity through open project prompts and learning activities. The students will all participate in various art shows throughout the year and have multiple opportunities for scholarships within the local area. Drawing and Painting provides students a vehicle for self expression and opportunity to learn an in depth study of two dimensional arts in an open and creative environment.

Art: CHS Drawing I (AR -111 Basic Art: Drawing I Carlow University)

Available to grades 11 & 12

3 college credits

(pre-requisite SJHS course Drawing and Painting)

Students taking College Drawing will study the 2 dimensional drawing techniques and concepts. This junior/senior course will educate students about line, value, perspective and composition within a variety of projects. Students will be given the opportunity to study anatomy and still life while also creating original works of art throughout the year. Students taking this course must complete the Introduction to Art course and has had at least one year of Drawing and Painting.

Chinese Cultures

Available to grades 9, 10, 11 & 12

This is a one-year option in addition to another world language. This course is designed to introduce students to the fundamentals of Chinese language and culture. Emphasis is placed on the four communication skills of listening, reading, writing and speaking.

CHS Chemistry (Duquesne University)

Available: grade 12

5 college credits

Prerequisites: (A) grade or weighted grade value (B) in previous/concurrent SJHS courses chemistry, biology, algebra II and a teacher recommendation.

This is a first year College in the High School chemistry course that is equivalent to a first semester college level chemistry course that will be completed over one school year. This course provides students with an understanding of basic principles of chemistry through classroom lectures, textbook readings, assignments and laboratory components. Topics covered are: components of matter, atomic structure and theory, Stoichiometry, Gas Laws, Thermochemistry, the Kinetic-Molecular Theory, Quantum Theory, Atomic Structure, Electron Configuration, Chemical Periodicity, Chemical Bonding, Shapes of Molecules, and an introduction to the Molecular Orbital Model.

The two main goals of the course are:

1) To introduce students to the fundamental concepts of chemistry which serve as

the building blocks for more advanced science courses.

2) To help the students develop critical thinking and problem solving skills so that they can not only solve basic chemistry problems, but also apply their chemistry knowledge to problems and situations that they have not encountered before.

Choir

Available to grades 9, 10, 11 & 12

This course is a survey of choral music from different genres and musical periods. There will be an emphasis on vocal technique and development and ensemble singing. The choir ensemble will host two concerts throughout the year. A minimal of 10 students is required to run the course.

Introduction to Computer Programming using JAVA

May be offered for 3 college credits (CS007 University of Pittsburgh) *

Available to grades 10, 11 & 12

Computer Programming with Java is a one-year elective teaching computer programming skills using the Java programming language. Students will learn computer logic, data storage and manipulation, program flow and control, data structures, interfacing with users and hardware, and object-oriented programming, skills which translate to any high-level programming language. Students will complete several programming challenges throughout the year, applying their skills to perform tasks to build intuitive user interfaces or building industrial control systems with robotics.

Music Appreciation (MU101 Saint Vincent College)

Available to grades 9, 10 11 & 12

3 college credits

A survey of classical music of Western culture: how to listen, what to listen for. Representative composers and works of the major periods of classical music will be discussed. The goals of the course are to have the student learn how to appreciate music of all styles, periods and genres, through an understanding of various forms, compositional techniques, historical factors and musical practices.

Robotics and Engineering I

Available to grades 9, 10 & 11

This course is designed for the first year robotics student. Students will explore robotics, technical education and STEM studies following a course of lectures, interactive instruction, and hands-on lab work. Students learn the engineering process, lab and shop safety, safe operation of hand and small power tools, robotics techniques including mechanical assembly, sensor use, remote control techniques, simple programming, and project management techniques. As the class progresses, groups are challenged to brainstorm, design, build, and test solutions to complex engineering problems related to robotics. In semester 1 all students learn JAVA and C++ based language used for programming the robotic system, and later learn 3D CAD using industry-standard software, Autodesk Fusion 360 and Sketchup. In semester 2 the challenge is

focused on VEX Curriculum and to successfully build, program and control mobile robots by performing specific tasks.

Robotics and Engineering II

Available to grades 10, 11 & 12 (Pre-requisite Robotics and Engineering I, and/or participation in FIRST Robotics)

In semester 1 students revisit physics concepts of work and power, simple machines, torque and rational properties. Students learn how to use additional power tools to speed the build/test workflow, they learn advanced CAD techniques and are introduced to 3D printing and machining, with opportunities to use the in-class 3D printer and CNC mill to create the objects they have designed. Class projects require teamwork and critical thinking to apply techniques learned in class and through research to solve complex problems and are involved in building process with the FIRST competition.

Science Research

Available to grades 9, 10 & 11

Science Research is a course for students who plan on participating in either PA Junior Academy of Science or the Pittsburgh Regional Science and Engineering Fair. It is designed to assist students as they develop an experiment, research, organize, and implement the procedure. If you are planning on a career in science this will be helpful, and it is required for students who are doing PJAS or PRSEF at any time during their high school career. This does not replace Physics I as a science course.

Probability & Statistics (Math 1040 La Roche College)

Available to grades 11 & 12; also grade 10 with math teacher recommendation.

3 college credits

The study of the fundamentals of probability theory with applications to natural and social sciences as well as to mathematics. Discrete and continuous distributions, sampling theory, linear correlation, regression, statistical inference, estimation and analysis of variance are included. Students will learn how to use a statistical computer package.

Psychology (PY100 Introduction to Psychology Saint Vincent College)

Available to grades 11 & 12

3 college credits

Psychology is the scientific study of mind, body, and behavior. Discussions, lectures, and assignments will introduce the student to developing an understanding of human behavior. The primary questions addressed in the course, will be "Why do people act the way that they do in specific situations?" and "How can people change behaviors?"

Topics covered will be: Motivation and emotion, sensation, development over the lifespan, learning, thinking and intelligence, memory and psychological disorders. Students will also learn about the methods psychologists use in their science and practice. In addition, students are expected to develop their critical thinking skills throughout the course, while building their reading, writing, and discussion skills.