

COURSE DESCRIPTIONS

SCIENCE

(For MST Courses See MST Section)

Honors Integrated Science (44010031)

Grade level: 9th

Prerequisite(s): None

HNR Integrated Science is an inquiry based interdisciplinary course that emphasizes topics in conceptual physical and earth science within a laboratory setting.

Advanced Program Integrated Science (44010091)

Grade level: 9th

Prerequisite(s): None

ADV Integrated Science is an inquiry based interdisciplinary course that emphasizes topics in conceptual physical and earth science within a laboratory setting. In addition, each student is given the opportunity to learn from detailed laboratory exercises, special projects, and research. Science, technology, and societal issues are integrated throughout the course.

Biology I (44120111)

Grade level: 10th

Prerequisite(s): None

Biology I is a course which offers a basic understanding of life and life processes. Required topics of study include: the cell, the molecular basis of heredity, biological change, the interdependence of organisms, behavior of organisms, and energy and organization in a living system. Laboratory techniques and their application in solving biological problems are key elements integrated into biology.

Honors Biology I (44120131)

Grade level: 10th

Prerequisite(s): None

HNR Biology I uses the same content as Biology I, but enriches and extends the curriculum by adding more complicated laboratory exercises, extensive reading and writing assignments, community involvement and independent student homework assignments.

Advanced Program Biology I (44120191)

Grade level: 10th

Prerequisite(s): None

AP Biology I uses the same content as Biology I, but enriches and extends the curriculum by adding more complicated laboratory exercises, extensive reading and writing assignments, community involvement and independent student homework assignments. In addition, research and special projects are incorporated. Science, technology, and societal issues are integrated throughout the course.

Advanced Placement Environmental Science (44030061)

Grade level: 11th-12th

Prerequisite(s): Integrated Science (or Chemistry), Biology

AP Environmental Science is a course in which high school students have the opportunity to earn college credit while they are still in high school. This course follows the College Board curriculum and is designed to provide students with the scientific principles, concepts, and methodologies required to understand the cycles in nature, interrelationships of the natural world, and to identify and analyze environmental problems.

Note: College level curriculum taught in a high school setting

Honors Chemistry I (44230331)**Grade level: 11th****Prerequisite(s): None**

HNR Chemistry I includes the study of atomic structure and theory, the chemical properties of matter, chemical reactions, and energy changes. Laboratory exercises, extensive reading and writing assignments, community involvement and independent student homework assignments are part of the course.

Advanced Program Chemistry I (44230391)**Grade level: 11th****Prerequisite(s): ADV Algebra 2 and ADV Integrated Science**

ADV Chemistry I includes the study of atomic structure and theory, the chemical properties of matter, chemical reactions, and energy changes. In addition, the student is given the opportunity to learn from detailed laboratory exercises, special projects, and research. Science, technology, and societal issues are integrated throughout the course.

Advanced Placement Biology II (44130461)**Grade level: 11th-12th****Prerequisite(s): Successful completion of Biology 1**

AP Biology II follows the College Board curriculum and covers topics regularly covered in a college biology course for majors.

Note: College level curriculum taught in a high school setting

Honors Anatomy and Physiology (44140031)**Grade level: 11th or 12th****Prerequisite(s): None**

HNR Anatomy and Physiology is an in-depth study of the human body's nine major systems' structural and functional components using inquiry-based laboratory experiences and activities, such as dissections of comparative organs.

Note: Elective Course

Advanced Program Anatomy and Physiology (44140091)**Grade level 11th or 12th****Prerequisite(s): None**

This course is an extensive study of the human body's nine major systems' structural and functional components using inquiry based laboratory experiences and activities such as dissections of comparative organs. The curriculum covers basic science and broad biomedical subjects including maternal/fetal medicine, heart disease, adolescent medicine, cancer, environmental medicine, neurological disorders as well as patient history and physical exams. By partnering with the University of Louisville, our students will be able to sample the medical school curriculum and foster a lasting interest in the health services.

Honors Chemistry II (44240131)**Grade level: 11th or 12th****Prerequisite(s): Successful completion of Chemistry 1**

HNR Chemistry II is an in-depth study of organic chemistry, thermodynamics, kinetics, equilibrium, and other selected topics using inquiry-based laboratory techniques and scientific practices. Students are encouraged to work both collaboratively and independently to enhance their understanding of scientific research as it relates to chemical concepts.

Advanced Program Chemistry II (44240191)**Grade level: 11th or 12th****Prerequisite(s): Successful completion of Chemistry 1**

ADV Chemistry II is an extensive study of organic chemistry, thermodynamics, kinetics, equilibrium, and other selected topics using inquiry-based laboratory techniques and scientific practices. Students are encouraged to work both collaboratively and independently to enhance their understanding of scientific research as it relates to chemical concepts.

Advanced Placement Chemistry II (44240161)**Grade level: 11th or 12th****Prerequisite(s): Successful completion of Chemistry 1**

AP Chemistry II follows the College Board curriculum and covers material that would normally be covered in a college introductory chemistry course.

Note: College level curriculum taught in a high school setting

Honors Physics I (44340431)**Grade level: 11th or 12th****Prerequisite(s): None**

HNR Physics I includes the study of the laws of motion and forces, the laws of conservation of energy, and the interactions of energy with matter. Laboratory exercises, extensive reading and writing assignments, community involvement, and independent homework assignments are part of the course.

Advanced Program Physics I (44340491)**Grade level: 11th or 12th****Prerequisite(s): None**

ADV Physics I includes the study of the laws of motion and forces, the laws of conservation of energy, and the interactions of energy with matter. Laboratory exercises, extensive reading and writing assignments, community involvement, research, special projects, and independent homework assignments are part of the course. Science, technology, and societal issues are integrated throughout the course.

Note: Elective Course

Advanced Placement Physics B (44350361)**Grade level: 12th****Prerequisite(s): Advanced Pre-Calculus/Calculus**

AP Physics B provides detailed descriptions of kinematics, dynamics, rotational motion, gravity, oscillations, waves, optics, thermal physics, electrical forces, electrical potential, DC circuits, magnetic forces, atomic physics and nuclear physics. The student is also given an introduction to the fascinating topics of special relativity and general relativity.

Note: College level curriculum taught in a high school setting

Special Topics in Science: Bioethics (43640121)**Grade level: 11th or 12th****Prerequisite(s): Chemistry I and Biology I**

Special Topics in Science: Bioethics introduces foundational concepts of moral and ethical theory and will present a survey of core issues and cases that have defined the field of bioethics. You will be expected to meet three key objectives:

1. Understand, articulate, and counter different types of ethical arguments, theories, and approaches.
2. Describe the theoretical, historical, and contextual underpinnings of current debates and cases in bioethics.
3. Reflect upon, challenge, defend and refine ethical positions through structured discourse, respectful debate, and scholarly research and writing.

Note: This is an upper level elective course, which will require a commensurate amount of reading, writing, and class participation. You should anticipate spending a substantial amount of time reading and preparing for the next day's class meeting.