

SCIENCE 10th GRADE COURSES

AP BIOLOGY

0935/0936 (use 3083)

2 Semesters 2 Credits Grades: 10-12

Prerequisites: Biology I and Chemistry I (or concurrent enrollment in Chemistry I)

Textbook Rental: \$14.04

Fee: \$23.00

Lab Workbook: \$13.00

AP Exam: Determined annually by College Board (last year's fee: \$85.00)

This course is weighted on a 5.0 scale, Quantitative Reasoning Course

COURSE DESCRIPTION: [IDOE 3020] Advanced Placement Biology is a very challenging college-level course which follows College Board Entrance Examination guidelines for Advanced Placement Biology. The AP Biology course and the AP Biology Examination stress biological facts, the synthesis of those facts into concepts, themes and science processes. The major areas of study are evolution, energy and systems. Students taking AP Biology engage in significant college-level laboratory work. This course fulfills a science requirement for Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors. *NOTE: In order to receive weighted credit and the Advanced Placement designation on transcripts, students must successfully complete both semesters of the Advanced Placement course and take the Advanced Placement examination in that course.*

INTEGRATED CHEMISTRY-PHYSICS

0915

2 Semesters 2 Credits Grade: 10

Prerequisite: Algebra I (or concurrent enrollment in Algebra I). Biology I is recommended.

Fee: \$8.00

Quantitative Reasoning Course

COURSE DESCRIPTION: [IDOE 3108] *Integrated Chemistry-Physics* is a course focused on the following core topics: motion and energy of macroscopic objects; chemical, electrical, mechanical and nuclear energy; properties of matter; transport of energy; magnetism; energy production and its relationship to the environment and economy. Instruction will focus on developing student understanding that scientific knowledge is gained from observation of natural phenomena and experimentation by designing and conducting investigations guided by theory and by evaluating and communicating the results of those investigations according to accepted procedures. The course will prepare students to complete future coursework in Chemistry I and Physics I. This course fulfills a science requirement for Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors.

CHEMISTRY I

0921

2 Semesters 2 Credits Grades: 10-12

Prerequisites: Biology I and Algebra I

Junior & Senior Prerequisites: "B" or better in Algebra I and "A" with teacher recommendation in ICP

Textbook Rental: \$13.53

Fees: \$8.00

Quantitative Reasoning Course

COURSE DESCRIPTION: [IDOE 3064] Chemistry lets you understand the world around you. It helps you to understand what you eat, what you wear, and what you observe. It is often called the central science as it connects many other sciences. In this course you will study matter, energy, counting and measuring atoms and their compounds, atomic structure and chemical reactions. The concepts will be presented through laboratory experiments that will involve making observations and predictions, collecting data, analyzing data, and communicating results. Problem solving skills, critical thinking and multiple representations of knowledge will be stressed. Upon successful completion of this course and if you are planning a career in a health,

medical or STEM field, you are strongly encouraged to take Chemistry II during your junior or senior year. This course fulfills a science requirement for Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors.

CHEMISTRY I HONORS

0919

2 Semesters 2 Credits Grades: 10-12

Prerequisites: Biology I and Geometry, Algebra II or Pre-Calculus (or concurrent enrollment in Pre-Calculus)

Textbook Rental: \$15.78

Fees: \$8.00

COURSE DESCRIPTION: [IDOE 3064] Chemistry lets you understand the world around you. It helps you to understand what you eat, what you wear, and what you observe. It is often called the central science as it connects many other sciences. Chemistry I Honors is designed for the college-bound student interested in a science career (medical related, engineering, etc.), and/or who has a high interest in science. The honors level of chemistry has a much deeper application of mathematics and the pace is much faster than Chemistry I. There is less direct teacher support in making connections between related topics and you will often be expected to independently apply and extend your knowledge to new situations.

In this course you will study matter, energy, counting and measuring atoms and their compounds, atomic structure, chemical reactions and bonding. The concepts will be presented through laboratory experiments that will involve making observations and predictions, collecting data, analyzing data, and communicating results. Problem solving skills, critical thinking and multiple representations of knowledge will be stressed. Upon successful completion of this course you will be well prepared and encouraged to take Chemistry II and /or AP Chemistry during your junior or senior year. This course fulfills a science requirement for Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors.

ASTRONOMY

0925

2 Semesters 2 Credits Grades: 10-12

Prerequisite: Geometry

Workbook: \$35.00

Fee: \$2.00

COURSE DESCRIPTION: [IDOE 3092] Astronomy provides for the in-depth investigation of astronomy. The course is a comprehensive, sequential, practical application course that utilizes the P-H-M Digital Video Theater (formerly the Planetarium) in the study of the: Celestial Sphere; Celestial Coordinates; Constellations; Solar System; Moon and Moon Phases; Eclipses; Sun as a star; Theories on the origin of our Solar System, Milky Way Galaxy, and Universe; Scale Models of: Earth-Sun, Solar System to our nearest star Alpha Centauri, and our Galaxy; Stellar Astronomy (all the things beyond the edge of our Solar System); Lives and Deaths of Stars; Spectroscopy; H&R Diagram; Cosmic Time Scale; Time Travel (Relativity); Life in the universe; Interstellar Space Travel; and the History of Manned Space Flight. This course fulfills a science requirement for Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors.

AP ENVIRONMENTAL SCIENCE

0945

2 Semesters 2 Credits Grades: 10-12

Prerequisites: Chemistry or Earth/Space Science

Textbook Rental: \$16.35

Fee: \$8.00

AP Exam: Determined annually by College Board (last year's fee: \$85.00)

This course is weighted on a 5.0 scale, Quantitative Reasoning Course.

COURSE DESCRIPTION: [IDOE 3012] The AP Environmental Science course is a more advanced study of topics in environmental science. The goal of the AP Environmental Science course is to provide students with the scientific principles, concepts, and methodologies required to understand the interrelationships of the

natural world, to identify and analyze environmental problems both natural and human-made, to evaluate the relative risks associated with these problems, and to examine alternative solutions for resolving and/or preventing them. Considerable emphasis is placed on outdoor field investigations as well as on indoor laboratory study. Students are required to take the AP Environmental Science Examination upon completion of the course in order to receive the weighted grade. It is necessary to have reading and study skills at a high enough level to read and comprehend college-level text and write college level papers and reports. This course fulfills a science requirement for Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors.

NOTE: *In order to receive weighted credit and the Advanced Placement designation on transcripts, students must successfully complete both semesters of the Advanced Placement course and attempt the Advanced Placement examination in that course.*

Project Lead the Way Biomedical Science Pathway(PLTW-BMS)

College Credit/Weighted Grades Info: Courses within the PLTW-BMS Pathway are dual credit through IUPUI, IVY Tech, and other higher ed institutes. To earn college credit students must earn an average of a B or higher on their semester grades. The Capstone Course, Biomedical Innovations is weighted as a 4.5 instead of a 4.0.

PLTW PRINCIPLES OF BIOMEDICAL SCIENCES (PBS)

0909

2 Semesters 2 Credits Grades: 9-12

Fee: \$15.00

This course is weighted on a 4.5 scale.

COURSE DESCRIPTION: [IDOE 5218] Principles of the Biomedical Sciences is a hands-on project based Project Lead the Way (PLTW) course. Students investigate various health conditions including heart disease, diabetes, sickle-cell disease, hyper-cholesterolemia, and infectious diseases. They determine the factors that led to the death of a fictional person, and investigate lifestyle choices and medical treatments that might have prolonged the person's life. The activities and projects introduce students to human physiology, medicine, and research processes. This course provides an overview of all the courses in the Biomedical Sciences program and lays the scientific foundation for subsequent courses. This course is designed for 9th - 12th grade students. College credit is offered through IUPUI for students that earn an EOC score of a 6 and above and a satisfactory grade in the course. The credit is accepted as a 100 level science elective. IUPUI offers letters of completion to students attending other colleges.- Currently there is no fee for credits associated with PLTW for students enrolled at IUPUI. This course fulfills a science requirement for Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors.

PLTW HUMAN BODY SYSTEMS (HBS)

0911

2 Semesters 2 Credits Grades: 10-12

Prerequisite: Principles of Biomedical Sciences (PBS)

Fee: \$15.00

This course is weighted on a 4.5 scale.

COURSE DESCRIPTION: [IDOE 5216] Human Body systems is a hands-on project based Project Led the Way (PLTW) course. Students examine the interactions of human body systems as they explore identity, communication, power, movement, protection, and homeostasis. Students design experiments, investigate the structures and functions of the human body, and use data acquisition software to monitor body functions such as muscle movement, reflex and voluntary action, and respiration. Exploring science in action, students build organs and tissue on a skeletal manikin, work through interesting real world cases and often play the roles of biomedical professionals to solve medical mysteries. This course is designed for 10th, 11th or 12th grade students. College credit is offered through IUPUI for students that earn an EOC score of a 6 and above and a satisfactory grade in the course. The credit is accepted as a 100 level science elective. IUPUI offers letters of completion to students attending other colleges. Currently there is no fee for credits associated with PLTW for students enrolled at IUPUI. This course fulfills a science requirement for Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors.

PLTW MEDICAL INTERVENTIONS**0961****2 Semesters 2 Credits Grades: 10-12****Prerequisites: PBS, HBS, or AP Biology****Fee: \$15.00*****This course is weighted on a 4.5 scale.***

COURSE DESCRIPTION: [IDOE 5217] Medical Interventions is the third course in the PLTW Biomedical Sciences program. In this year long course, students investigate a variety of interventions involved in the prevention, diagnosis and treatment of disease as they follow the life of a fictitious family. The course is a "How-To" manual for maintaining overall health and homeostasis in the body. Students explore how to prevent and fight infection; screen and evaluate the code in human DNA; prevent, diagnose and treat cancer; and prevail when the organs of the body begin to fail. Through these scenarios, students are exposed to a range of interventions related to immunology, surgery, genetics, pharmacology, medical devices, and diagnostics. This course is designed for 10th - 12th grade students. College credit is offered through IUPUI for students that earn an EOC score of a 6 and above and a satisfactory grade in the course. The credit is accepted as a 100 level science elective. IUPUI offers letters of completion to students attending other colleges. Currently there is no fee for credits associated with PLTW for students enrolled at IUPUI. This course fulfills a science requirement for Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors.