Course Title: Anatomy and Physiology

Department: Science

Length: 1 year (2 semesters); 1.0 credits earned upon successful completion of the course

Prerequisites: Biology and Chemistry

Textbooks: Primary: *Essentials of Human Anatomy and Physiology*. Elaine N. Marieb. Pearson.

Secondary: Material and resources prepared by individual instructor

Course Goals and Objectives: Describe and evaluate the different organ systems in the human body. Throughout the course, students will learn to identify how the different systems maintain homeostatic balance and correct imbalances. Additionally, students will apply real world situations and examples to practical applications within human anatomy, along with lab components.

Course Description:

General Overview: Anatomy and physiology students will incorporate basic biology and chemistry practices to understand the functions of the human body. Students will learn the procedures for carrying out dissections and the intricacies of different organ systems.

Itemized Details of Course Content:

First Semester (the order of instruction may change based on teacher discretion)

a) Relationship between anatomy and physiology
b) Structural organization of organisms
c) Necessary life functions
d) Maintaining homeostasis
e) Language of anatomy
f) Anatomy and physiology of generalized cells
g) Characteristics of body tissues: epithelial, connective, muscular, and nervous.
h) Tissue repair and cell development
i) Classification of body membranes: epithelial and connective membranes.

j) Functions of the integumentary system
k) Appendages of skin
l) Function and formation of bones
m) Classification of bones
n) Bones of the axial and appendicular skeleton
o) Articulations

*Dissections and major labs associated with these systems are based on teacher discretion

Second Semester (the order of instruction may change based on teacher discretion)

a) Muscle tissue functions
b) Skeletal muscle activity
c) Naming and identifying skeletal muscles
d) Structural and functional classification of the nervous tissue
e) Central nervous system
f) Peripheral nervous system
g) Anatomy of the eye
h) Physiology of vision
i) Anatomy of the ear
j) Static and dynamic equilibrium
k) Physiology of hearing
l) Olfactory receptors and smell
m) Taste buds and taste
n) Hormone function and control
o) Endocrine organs
p) Anatomy and physiology of the heart
q) Blood vessels
r) Anatomy and physiology of the respiratory system
s) Fetal pig dissection (culminating lab)

*Dissections and major labs associated with these systems are based on teacher discretion

Course Title: Advanced Placement Physics 1

Department: Science

Length: 1 year (2 semesters); 1.0 credit earned upon successful completion of the course

Prerequisites: Successful completion of Algebra 1, Geometry, and Algebra 2 (or their equivalents)

Textbook: Walker, Physics, Technology Update, 4th edition, Pearson

Course Goals and Objective: The ability to apply key physics principles in the solution of problems, as well as, the ability to apply physics in application to laboratory work are major goals of the course. Course goals/objectives will be demonstrated by the following:
1. Read, understand and interpret physical information: verbal, mathematical and graphical.
2. Describe and explain the sequence of steps in the analysis of a particular physics problem.
3. Use basic mathematical reasoning: arithmetic, algebraic, geometric, and trigonometric.
4. Perform experiments and interpret the results of observations, including making an assessment of experimental uncertainties.
5. Developing the skills in using models and the operations with these models.

Course Description:

Advanced Placement Physics 1 is a non-calculus-based physics course that covers many interesting physics topics. After completion, students will be better prepared to take the AP™ Physics 1 exam, though the scope of the course is not limited solely to the AP™ Physics 1 curriculum. This is a rigorous course that covers: Kinematics; Newton's Laws of Motion; Gravitation and Circular Motion; Work, Energy, Power, and Linear Momentum; Torque and Rotational Motion; Simple Harmonic Motion, Waves, and Sound; Electrostatics and Simple Electric Circuits; among other topics as time permits. Laboratory work, hands-on activities, and such will be included as an essential part of the course – The emphasis will be on Inquiry-Based Learning and Physics Problem Solving. Algebra and Trigonometry will be the mathematical tools used to support analytical examination of the many observations made by the student throughout the year. AP™ Physics 1 is the first year of a two year curriculum which covers all topics found in a typical college introductory physics course. AP™ Physics 1 requires daily practice, study, and review. An emphasis will be placed on learning AP™ Physics 1 Big Ideas and Enduring Understanding.

Itemized Details of Course Content:

First Semester (the order of instruction may change based on teacher discretion)

a) dimensional analysis: fundamental dimensions, units and conversions, significant digits, uncertainty, lab reports and investigations preliminaries, coding introduced

b) kinematics in one-dimension: world-line, constant velocity, uniform accelerated motion, vectors, vector components and resultant, kinematics in two-dimensions, projectile motion, string-clock, reference frames

c) dynamics: Newton's laws of motion, forces, types, and representation, free-body diagrams, concurrent forces, applications of Newton's laws of motion, apparent weight and weightlessness, Atwood machine, friction, interacting objects, ropes and pulleys, connected objects, incline planes, springs and Hooke's law

d) circular motion: uniform circular motion, dynamics of uniform circular motion, centripetal acceleration, centrifuges

e) energetics: work, energy, and power, kinetic energy, potential energy: gravitational and elastic, conservation of energy, work-energy theorem, dot scalar product, conservative and non-conservative forces

f) momentum: linear momentum, impulse, conservation of momentum, elastic and inelastic collisions, systems of particles, Newton's second law in terms of momentum, car safety and three collisions in an accident, crumple zones and roundabouts

g) torque, center of mass, cross vector product, right-hand-rule, equilibrium, truss bridge designs, torque wrenches: crow's foot and extensions, balance

h) laboratory investigations and activities, writing lab reports, group and independent study

Second Semester (the order of instruction may change based on teacher discretion)

a) rotational motion and angular momentum: rotational kinematics, rotational dynamics and rotational inertia, rotational energy, angular momentum, conservation of angular momentum, gyroscopes and spinning objects

b) gravitation and circular motion: uniform circular motion; dynamics of uniform circular motion, universal law of gravitation, elliptical motion; Kepler's laws, satellite motion, gravitational waves, black holes

c) oscillations: simple harmonic motion, linear restoring forces and simple harmonic motion, simple harmonic motion graphs, simple pendulum, mass-spring systems

d) waves and sound: mechanical waves, traveling waves, wave characteristics, sound, superposition, standing waves on a string, standing sound waves, auditory illusions

e) electrostatics: electric forces and fields, electric charge and conservation of charge, electric force: Coulomb's law

f) direct current circuits: electric resistance, ohm's law, DC circuits, series and parallel connections, Kirchhoff's laws, networks; RC circuits

i) laboratory investigations and activities, writing lab reports, group and independent study

Course Title: Astronomy

Department: Science

Length: 0.5 year (1 semester); 0.5 credits earned upon successful completion of the course.

Prerequisites: Biology and Chemistry

Textbooks: Primary: *Astronomy 101: A Crash Course in the Science of Space.* Carolyn Peterson. Adams Media

Secondary: Material and resources prepared by individual instructor

Course Goals and Objectives: Build upon previous experiences and develop a deeper understanding of the universe. Look at how astronomy started as a science of observation and built upon scientific and technological advances.

Course Description:

General Overview: Start with the history of astronomy and look at the relationships between observational studies and mathematical computations. Discuss the interactions of certain scientific laws and their practical application in astronomy.

Itemized Details of Course Content:

One Semester (the order of instruction may change based on teacher discretion)

a) History of astronomy
b) Ancient observational methods
c) Development of heliocentric and geocentric models
d) Famous scientists
e) Differences of scientific ideals
f) Technological advances
g) Movement of the planets
h) The Moon
i) The Sun
j) Stellar birth, life, and death
k) Black holes
l) Astronomical theories

*Major labs associated with these concepts are based on teacher discretion

Course Title: Biology

Department: Science

Length: 1 year (2 semesters); 1.0 credits earned upon successful completion of the course

Prerequisites: None

Textbook: Miller, Kenneth R., and Joseph S. Levine. *Biology*. Pearson, 2019.

Course Goals/ Objectives: Through the study of Biology, students will develop an appreciation and understanding of the nature of science, as well as, further develop their ability to think critically about the world around them.

Course Description:

General Overview: In this course, students will be introduced to the basic topics of Biology including, but not limited to: Ecology, Cellular Biology, Genetics, Evolution, and Classification of Life.

Itemized Details of Course Content:

First Semester (the order of instruction may change based on teacher discretion)

a) scientific method

b) characteristics of life

c) biochemistry - properties of water, macromolecules, chemical reactions and enzymes

d) ecology - ecosystems, energy flow, biogeochemical cycles, population growth and dynamics

e) cell structure and function

f) cell transport

g) photosynthesis

h) cellular respiration

i) cell growth and division

Second Semester (the order of instruction may change based on teacher discretion)

a) mendelian genetics and other patterns of inheritance

b) meiosis

c) DNA - structure and replication

d) protein synthesis - transcription and translation

e) the human genome

f) evolution - natural selection, speciation, and evolution of populations

g) biodiversity and classification of life

h) characteristics of viruses and bacteria

g) animal kingdom diversity, characteristics, and behavior

Course Title:
Advanced Computer II: Programming/C++

Department:
Computers/Technology

Number of Semester/Credit(s):
Two Semesters

Course Prerequisite(s):
Previous programming experience is preferable

Required Textbook(s):
C++ Programming: From Problem Analysis to Program Design

Course Goals/Objectives:
The objectives of this offering are to:

1. Give an overview of computers and programming languages
2. Learn basic elements of C++
3. Explore how to read/write data from/to the standard input/output device
4. Discover how to use the selection control structures if and if... else
5. Examine int and bool data types, and logical (Boolean) expressions
6. Perform repetition (looping) control structures
7. Learn about standard (predefined) and user-defined functions
8. Learn about user-defined simple data types, namespaces, and string type
9. Use arrays and strings
10. Use records (structs)
11. Examine classes and data abstraction
12. Learn about inheritance and composition
13. Use pointers, classes, virtual functions, abstract classes, and lists
14. Use overloading and templates
15. Use exception handling
16. Use recursion
17. Use linked lists
18. Use stacks and queues
19. Learn about searching and sorting algorithms

Course Description:
This two-semester course is designed to motivate and stimulate all introductory programming students. As with any profession, practice is essential. Students will learn and practice key concepts, which include problem solving, design strategies, algorithms, and common data structures.

Itemized Course:

Semester 1	**Semester 2**
An Overview of Computers and Programming Languages	Records (Structs)
Basic Elements Of C++	Classes and Data Abstraction
Input/Output	Inheritance And Composition
Control Structures – Part 1	Pointers, Classes, Virtual Functions, Abstract Classes, And Lists
Control Structures – Part 2 (Repetition)	Overloading and Templates
User-Defined Simple Data Types, Namespaces, and the String Type-Defined Functions	Exception Handling
Arrays and Strings	Linked Lists

Course Title:	Chemistry
Department:	Science
Length:	1 year (2 semesters); 1.0 credits earned upon successful completion of the course
Prerequisites:	Biology
Textbook:	Pearson Chemistry by Waterman, Staley, Matta, and Wilbraham

Course Goals and Objectives: This rigorous full-year course engages students in the study of the composition, properties, changes, and interactions of matter. This course covers the basics of chemistry and includes laboratory experiments that encourage higher-order thinking applications. There is also a wet lab component for each of the units listed below. Throughout the course, students solve problems, reason abstractly, and learn to think critically about the world around them and how chemistry is integrated in everything they encounter.

Course Description:

General Overview: Regular chemistry uses the Next Generation Science Standards to explain numerous phenomena based units that help student grasp the basic chemistry of the world around them.

Itemized Details of Course Content:

First Semester (the order of instruction may change based on teacher discretion)

a) Introduction to Chemistry Data and Analysis

b) Matter and Change

c) The Atom and Atomic Structure

d) Electrons in Atoms

e) Periodic Table and Law

Second Semester (the order of instruction may change based on teacher discretion)

a) Introduction to Bonding

b) Chemical Formula and Compounds

c) Chemical Reactions and Equations

d) Thermochemistry

e) Acids and Bases Chemistry

f) Organic Chemistry

Course Title: Earth Science

Department: Science

Number of Semester/Credits: 1 semester

Course Prerequisites: N/A

Required Textbooks: Earth Science – Geology, the Environment, and the Universe

Course Goals/Objectives: Students will build their understanding of the universe, earth's history, dynamic earth, and severe weather.

Course Description:

In addition to meeting the essential expectations, students will have an opportunity to examine complex interactions between components of the environment through inquiry and reflection. We will build upon basic knowledge of the sciences by frequently examining data, observing models, and reflecting on current events in these ever-changing areas of science. Through the use of data, models, and inferences, students will be continually asked to think critically about the world around them as they deepen their knowledge in the earth sciences and learn more about the nature of science.

Itemized Course Content:

a) The Universe – Big Bang Theory, Galaxies, Stars, Solar System, Sun
b) Earth's History – Relative Dating, Absolute Dating, Minerals, Rock Cycle
c) Dynamic Earth – Continental Drift, Plate Boundaries, Volcanoes, Earthquakes
d) Severe Weather – Layers of the Atmosphere, Air Masses, Fronts, Wind, Tornadoes, Hurricanes

Course Title: Engineering Science

Department: Science

Prerequisites: Geometry and Chemistry

Textbook: Wright, Strimel, and Grubbs. Foundations of Engineering and Technology

Course Goals and Objectives: Apply the engineering problem solving process to solve basic engineering design and analysis problems. Solve basic analytical (and design) problems using engineering tools, and be proficient and efficient in the use of these tools. Choose appropriate tools to solve specific engineering problems.

Course Description:

General Overview: An introduction to Engineering Science. The course is designed to bring exposure to engineering and educate students about the variety of engineering majors. Educate students on what is needed in math, science, communication, etc. to be an engineer. The course also provides students with the essential tools for further study in engineering.

Itemized Details of Course Content:

First Semester (the order of instruction may change based on teacher discretion)

a) The creation and incorporation of technology
b) Connecting technology through Mathematics
c) Connecting Technology through Science
d) Fundamentals of Engineering
e) Pneumatic Design and implementation
f) Basic Electrical Design and implementation
g) Technology as a System
h) Technological Processes
i) Introduction to Design based solutions

j) Basic Engineering Problem Solving

Second Semester (the order of instruction may change based on teacher discretion)

a) Basics of Mechanical Engineering

b) Basics of Biomedical Engineering

c) Basics of Electrical Engineering

d) Basics of Aerospace Engineering

e) Basics of Chemical Engineering

f) Introduction to Materials Science

g) Intermediate Engineering Problem Solving

h) Basics of Computer Engineering

i) Introduction to Computer Aided Design

Course Title: Environmental Science

Department: Science

Number of Semester/Credits: 1 year (2 semesters)

Course Prerequisites: N/A

Required Textbooks: Environment 6th Edition Raven

Course Goals/Objectives: Students will build their understanding of environmental systems, the physical environment, ecosystems, human health, energy, and pollution.

Course Description:

In addition to meeting the essential expectations, students will have an opportunity to examine complex interactions between components of the environment and effect of humans through inquiry and reflection, as well as reflecting upon various social implications. We will utilize basic knowledge of the sciences by frequently examining data, observing models, and reflecting on current events in these ever-changing areas of science. Through the use of data, models, and inferences, students will be continually asked to think critically about the world around them as they expand their knowledge in environmental science and learn more about the impact of human activities.

Itemized Course Content:

First Semester

a) Environmental Systems – Laws & Ethics, Energy Flow, Kingdom & Domain, Interacting Organisms
b) Physical Environment – Biogeochemical Cycles, Atmosphere, Oceans, El Niño, Plate Boundaries, Earthquakes, Tsunamis, Volcanoes
c) Ecosystems – Biomes, Surface Water, Thermocline, Saltmarshes, Mangroves

Second Semester

a) Human Health – Health Effects, Fertility
b) Energy – Nuclear, Solar, Hydropower, Wind, Biomass, Geothermal
c) Pollution – Water Pollution, Air Pollution

Course Title: Forensics

Department: Science

Length: 0.5 year (1 semester); 0.5 credits earned upon successful completion of the course.

Prerequisites: Biology and Chemistry

Textbooks: Primary: *Forensic Science: Fundamentals & Investigations*. Anthony Bertino. Cengage.

Secondary: Material and resources prepared by individual instructor

Course Goals and Objectives: Introduction to the science behind forensic investigations using biology, chemistry, and some physics. Throughout the course, students will be able to identify the necessary steps taken by forensic scientist to aid in the detection of evidence through the application of scientific knowledge.

Course Description:

General Overview: Students will incorporate previous course material from biology and chemistry to build an understanding and apply basic principles behind crime scene investigations.

Itemized Details of Course Content:

a) Observation vs. Perception
b) Reliability of observations
c) How to observe a crime scene
d) Logical reasoning
e) Crime scene investigation teams
f) Collection and analysis of evidence
g) Hair evidence
h) Fiber and textile evidence
i) Fingerprints
j) Blood recognition
k) Blood spatter
l) Forensic Anthropology

*Major labs associated with these concepts and applications are based on teacher discretion

Course Title: Genetics

Department: Science

Number of Semester/Credits: 1 semester

Course Prerequisites: N/A

Required Textbooks: N/A

Course Goals/Objectives: Students will build their understanding of transmission genetics, DNA & chromosomes, and population genetics.

Course Description:

In addition to meeting the essential expectations, students will have an opportunity to examine complex interactions between components of genetics through inquiry and reflection. We will build upon basic knowledge of the sciences by frequently examining data, observing models, and reflecting on current events in these ever-changing areas of science. Through the use of data, models, and inferences, students will be continually asked to think critically about the world around them as they deepen their knowledge in genetics and learn more about what this information means for the future.

Itemized Course Content:

a) Transmission Genetics – Organelles, Mitosis/Meiosis, Stem Cells, Birth Defects
b) DNA & Chromosomes – Punnett Squares, Pedigrees, Sex-Linked Disorders, Behavioral Disorders, DNA Experiments
c) Population Genetics – Karyotypes, Black Plague

Honors Biology Syllabus

Course Description:

Honors Biology offers students an opportunity to further their knowledge of/in ecology, biochemistry, cell structure, chromosomes, cell division, genetics and evolution, among others. The course will minimally present all of the essential and core expectations provided in the Michigan High School Grade Level Content Expectations (GLCEs) for "Biology" credit toward the Michigan Merit Graduation Requirements and a State-endorsed HS Diploma.

Objectives:

Participation in this course is designed to bring about a comprehensive understanding and appreciation of life as we know it here on Planet Earth. Some of the major goals include the development of your understanding of The Scientific Method/Process, your vocabulary/nomenclature, an understanding of simple and complex plant and animal organisms, cellular structure and processes, bio-chemistry, genetics, mitosis and meiosis, human development, anatomy and physiology, an appreciation for the environment, the time-line of our ecosystem (origin of Earth), the time-line of life on Earth and the appreciation of and for Our Creator God's role in Creation.

Textbook: Pearson Biology.
Web-site: TBA

Course Content (Units):

Semester 1:	**Semester 2:**
Scientific Method and Ecology	Biological diversity (cont.)
The Cell	Bacteria, Viruses, Protists + Fungi
Genetics	Plants
Biological Diversity	Invertebrates
	Vertebrates
	The Human Body

Biology Grading Policy:

Grades earned on "Unit Assessment" Worksheets and Study Guides will be worth 10 points apiece.

All other student work will be worth 50 points and can include major essays, projects, quizzes, exams, tests and oral assessments.

All grades and completed work will be posted at StMarysPrep.com via Net Classroom.

Science grades will be proficiency based:

Grades will reflect meaningful work tied to the standards and expectations designated for this specific course and will be translated to letter grades based on the St. Mary's Prep Grading Scale.

Students must successfully complete Biology and Chemistry or Physics and one Elective Science class to meet the Michigan Merit Graduation Requirements in Science. ½ (.50) Credit is earned for successful completion of a 1 (one) semester class.

Successful completion of this course will be accomplished when a student has earned at least a passing grade in the summative mean of 3 marking-periods and 1 final exam in a semester.

To earn a full credit, students must successfully complete 2 (both) semesters of this course.

Course Title:	Honors Chemistry
Department:	Science
Length:	1 year (2 semesters); 1.0 credits earned upon successful completion of the course
Prerequisites:	Biology
Textbook:	Pearson Chemistry by Waterman, Staley, Matta, and Wilbraham

Course Goals and Objectives: This rigorous full-year course engages students in the study of the composition, properties, changes, and interactions of matter. This course covers the basics of chemistry and includes laboratory experiments that encourage higher-order thinking applications. There is also a wet lab component for each of the units listed below. Throughout the course, students solve problems, reason abstractly, and learn to think critically about the world around them and how chemistry is integrated in everything they encounter.

Course Description:

General Overview: Honors chemistry uses the Next Generation Science Standards to explain numerous phenomena-based units that help student grasp the basic chemistry of the world around them.

Itemized Details of Course Content:

First Semester (the order of instruction may change based on teacher discretion)

a) Introduction to Chemistry Data and Analysis

b) Matter and Change

c) The Atom and Atomic Structure

d) Electrons in Atoms

e) Periodic Table and Law

f) Ionic and Covalent Bonding

Second Semester (the order of instruction may change based on teacher discretion)

a) Chemical Formula and Compounds

b) Chemical Reactions and Equations

c) Thermochemistry

d) Acids and Bases Chemistry

e) Organic Chemistry

f) Functional Groups and Biochemistry

g) Nuclear Chemistry

Course Title:	Physics
Department:	Science
Length:	1 year (2 semesters); 1.0 credit earned upon successful completion of the course
Prerequisites:	Successful completion of Algebra 1 and Geometry. In addition, successful completion of Algebra 2 (or concurrently)
Textbook:	Zitzewitz, Physics: Principles & Problems, Glencoe, © 2013

Course Goals and Objectives: The study of physics requires a thorough and complete background in algebra and geometry. A student will further develop his mathematical literacy and problem-solving skills in both theoretical and practical applications in preparation for additional physics courses. A focus will be on:

1. Understanding and using concepts.
2. Expression in discussing scientific ideas and principles.
3. Functioning in laboratory investigations.
4. Planning work, budgeting time, using opportunities to learn.
5. Developing the skills in using models and the operations with these models.

Course Description:

Physics is a year-long course that covers many interesting topics. A strong background in Algebra and Geometry is required. Key topics will include: Mechanics (Motion); Thermodynamics (Heat and Temperature); Electricity & Magnetism (Circuits); Waves & Light (Sound); Energy and such. The course will be both conceptual and mathematical in nature. Labs and hands-on activities will be included, with a focus on enduring understandings that bring physics to life. Online resources will be used, as well as a variety of technology to help in the learning process. Interesting questions will be given to reflect and ponder over. Group work and discussions will be encouraged. Problem solving will be developed and enhanced by the use of scientific/graphing calculators. A variety of teaching methods will be used to help students learn – a focus will be on teaching and learning. Appropriate assessments will be given to determine a student's achievement, effort, and understanding.

Itemized Details of Course Content:

First Semester (the order of instruction may change based on teacher discretion)

a) Physics toolkit: dimensional analysis, fundamental dimensions, units and conversions, significant digits, scientific notation, vectors and scalars, coding introduced

b) Motion in one dimension: speed, displacement, velocity, acceleration, uniform accelerated motion, free-fall, string-clock

c) dynamics: forces in one dimension, Newton's laws of motion, displacement and force in two dimensions, center of mass, vectors in two dimensions, right triangle trigonometry applications, apparent weight and weightlessness

d) Motion in two dimensions, projectile motion, bowling ball race

e) Gravitation and circular motion, Kepler's laws and planetary motion, satellite motion, black holes

f) Work, energy, power, kinetic energy, potential energy: gravitational and elastic, conservation of energy, energy conversion devices, machines and mechanical advantage, roller coasters

g) linear momentum, impulse, conservation of momentum, collisions, car safety and three collisions in an accident, crumple zones and roundabouts

h) torque, equilibrium, rotational motion, connections between linear and angular motion, truss bridge designs

i) laboratory investigations and activities, writing lab reports, group and independent study

Second Semester (the order of instruction may change based on teacher discretion)

a) thermal energy, temperature and heat, heat engines, entropy, thermal expansion

b) states of matter, pressure, fluids, Archimedes' principle, Bernoulli's principle

c) vibration and waves, wavelength, frequency, sound, auditory illusions, resonance, musical instruments

d) fundamentals of light, mirrors and lenses, interference and diffraction, electromagnetic spectrum

e) static electricity, electric fields, electric current, series and parallel circuits, capacitors

f) magnets, magnetic fields, electromagnetic induction, electromagnetism, magnetic breaking, Lenz's law

g) nuclear and particle physics, radioactive decay, half-life, particle accelerators, standard model, higgs boson

j) laboratory investigations and activities, writing lab reports, group and independent study

Course Title: Zoology

Department: Science

Length: 0.5 year (1 semester); 0.5 credits earned upon successful completion of the course.

Prerequisites: Biology and Chemistry

Textbooks: Primary: Material and resources prepared by individual instructor

Course Goals and Objectives: Take introductory knowledge from biology and build an understanding of how life evolves and changes. Take a deeper look at the mechanisms behind evolution and then look at the different phylum's, focusing on invertebrates and the development of complex organisms.

Course Description:

General Overview: Looking at the evolutionary aspects of each kingdom and how the more complex organism develop over time. Look at the change in organ systems and understand the role environment plays in developmental aspects of organismal traits.

Itemized Details of Course Content:

One Semester (the order of instruction may change based on teacher discretion)

a) Characteristics of life
b) Ecology
c) Evolution
d) Introduction to phyla
e) Porifera
f) Cnidarians
g) Platyhelminthes
h) Nematodes
i) Annelida
j) Mollusca
k) Echinodermata
l) Arthropods
m) Chordates

*Dissections and major labs associated with each phylum are based on teacher discretion