

2009-2010 Science Courses

Students should visit the Bright Futures Scholarship Program web site at <http://www.floridastudentfinancialaid.org/ssfad/home/uamain.htm> Click on “Programs Offered” tab Then click on the “Florida Bright Futures Scholarship Program” Click “www.floridastudentfinancialaid.org/SSFAD/bf/acadrequire.htm” to check for course eligibility for the Bright Futures Scholarships and admission to the Florida state university system. Student athletes should contact their coach or athletic director regarding NCAA eligible core courses.

Course Title: Integrated Science I
Course Number: 20024000
Credit: 1.00
Grade Level: 9-11

Major Concepts/Content

The purpose of the first course in the 3-course integrated science sequence is to develop comprehensive concepts and to provide students with the opportunity to do investigative studies of concepts basic to Earth, its materials, processes, and history, environment in space.

Students will be able to explore the theories and laws associated with the natural physical and chemical properties of matter and to become familiar with human growth and development within the context of our society.

Laboratory investigations that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

SPECIAL NOTE: *This course is the first of a three year sequence of courses. Together, Integrated Science I, II, and III satisfy the science graduation requirement. NCAA.*

Course Title: Integrated Science II
Course Number: 20024200
Credit: 1.00
Grade Level: 9-12

Major Concepts/Content

This second course in the integrated science sequence will concentrate in the development of major concepts in biology and preparatory concepts in chemistry as they relate to the physical and chemical world.

Students will explore biochemical processes both from a chemical and physical perspective and relate major biological principles to social and technological systems.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus and safety are an integral part of this course.

PREREQUISITE: *Successful Completion of Integrated Science I.*

SPECIAL NOTE: *This course is the second of a three year sequence of courses. Together, Integrated Science I, II, and III satisfy the science graduation requirement., NCAA*

Course Title: Integrated Science III
Course Number: 20024400
Credit: 1.00
Grade Level: 10-12

Major Concepts/Content

The third course in the integrated science sequence will focus on the role major physical concepts and phenomena play in the functions of the body's systems, including mechanical, optical, acoustic, electrical, hydraulic, pneumatic, and metabolic. Additionally, the impact human beings have on Earth's global biotic and abiotic components will be explored.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus and safety are an integral part of this course.

PREREQUISITE: *Successful Completion of Integrated Science II.*

SPECIAL NOTE: *This course is the third of a three year sequence of courses. Together, Integrated Science I, II, and III satisfy the science graduation requirement. NCAA.*

Integrated Science I, II, and III when taken sequentially, equate to one credit of Biology, one credit of Chemistry, and one credit of Physics and as three units of academic core courses in the Florida state university system.

Course Title: Integrated Science I Honors (A)
Course Number: 20024100
Credit: 1.00
Grade Level: 9-11

Major Concepts/Content

This first advanced course in the integrated science sequence will provide students with the opportunity to do investigative studies of concepts basic to Earth, its materials, processes, history, and environment in space.

Students will be able to explore the theories and laws associated with the natural physical and chemical properties of matter and to become familiar with human growth and development within the context of our society.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: *Reading Level 85% or above.*

SPECIAL NOTE: *This course is the first of a three year sequence of courses. Together Integrated Science I, II, and III Honors satisfy the science graduation requirement. NCAA.*

Course Title: Integrated Science II Honors (A)
Course Number: 20024300
Credit: 1.00
Grade Level: 9-12

Major Concepts/Content

This second advanced course in the integrated science sequence will concentrate in the development of major concepts in biology and preparatory concept in chemistry as they relate to the physical and chemical world.

Students will explore biochemical processes both from a chemical and physical perspective and relate major biological principles to social and technological systems.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus and safety are an integral part of this course.

PREREQUISITE: *Successful Completion of Integrated Science I Honors.*

SPECIAL NOTE: *This course is the second of a three year sequence of courses. Together, Integrated Science I, II, and III Honors satisfy the science graduation requirement. NCAA.*

Course Title: **Integrated Science III Honors (A)**

Course Number: **20024500**

Credit: **1.00**

Grade Level: **10-12**

Major Concepts/Content

The third advanced course in the integrated science sequence will focus on the role major physical concepts and phenomena play in the functions of the body's systems, including mechanical, optical, acoustic, electrical, hydraulic, pneumatic, and metabolic. Additionally, the impact human beings have on Earth's biotic and abiotic components will be explored.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus and safety are an integral part of this course.

PREREQUISITE: *Successful Completion of Integrated Science II Honors.*

SPECIAL NOTE: *This course is the third of a three year sequence of courses. Together, Integrated Science I, II, and III Honors satisfy the science graduation requirement. NCAA.*

Integrated Science I, II, and III Honors when taken sequentially, equate to one credit of Biology Honors, one credit of Chemistry Honors, and one credit of Physics Honors and as three units of academic core courses in the Florida state university system.

Course Title: **Earth/Space Science (R)**

Course Number: **20013100**

Credit: **1.00**

Grade Level: **9-12**

Major Concepts/Content

Earth/Space Science will provide opportunities for students to develop concepts basic to Earth, its materials, processes, history and environment in space. Topics will include but not be limited to: origins of the universe and solar system, Earth-moon system, minerals and rocks, divisions of the earth and land forms, hydrological cycle, and weather.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus and safety are an integral part of this course.

SPECIAL NOTE: *NCAA.*

Course Title: Earth/Space Science Honors (A)
Course Number: 20013200
Credit: 1.00
Grade Level: 9-12

Major Concepts/Content

Earth/Space Science Honors will provide students with opportunities to develop concepts basic to Earth, its materials, processes, history, and environment in space. Topics will include but not be limited to: theories on the origin of the universe and solar system, tools of astronomical observation, the solar system, nature of matter and atomic structure, land forms, mineral and rocks, hydrologic cycle, oceanography, the atmosphere and weather.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: Reading level 85% or above.

SPECIAL NOTE: NCAA.

Course Title: Environmental Science (R)
Course Number: 20013400
Credit: 1.00
Grade Level: 9-12

Major Concepts/Content

The purpose of this course is to provide an opportunity for students to study the concepts, theories and laws governing the interaction of matter, energy, and forces, and their application to the environment. Topics will include, but not be limited to: Earth/space, pollution, conservation of natural resources, environmental management, and society's impact on the environment.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

SPECIAL NOTE: NCAA

Course Title: Biology I (R)
Course Number: 20003100
Credit: 1.00
Grade Level: 9-12

Major Concepts/Content

Biology I will provide opportunities to students for general exploratory experiences and activities in the fundamental concepts of life. Topics will include but not be limited to: the scientific method, measurements, laboratory apparatus usage and safety, cell biology and cell reproduction, principles of genetics, biological change through time, classification, microbiology, structure and function of plants and animals, structure and function of the human body, and ecology.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: Earth/Space or Environmental Science or Science Department approval.

SPECIAL NOTE: NCAA.

Course Title: Biology Technology (R)

Course Number: 20004300

Credit: 1.00

Grade Level: 9-12

Major Concepts/Content

This course explores current and relevant topics in enzymology, immunology, microbiology, molecular biology, genetics and plant and animal biology. The contributions of biotechnology to health, pharmacology, and agriculture are discussed. Attention will be given to the relationship between microorganisms, bacteria and disease and to current applications of genetic engineering in this field.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: *Earth/Space or Environmental Science or Science Department approval.*

SPECIAL NOTE: *NCAA.*

Course Title: Biology I Honors (A)

Course Number: 20003200

Credit: 1.00

Grade Level: 9-12

Major Concepts/Content

Biology I Honors will provide opportunities to students for general exploratory experiences and activities in the fundamental concepts of life. Topics will include but not be limited to: the scientific method, laboratory apparatus usage and safety, biochemistry, cell biology, genetics, botany, zoology, human anatomy and physiology, and ecological relationships.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: *Earth/Space or Environmental Science and/or Science Department approval.*

SPECIAL NOTE: *NCAA.*

Course Title: Pre AICE Biology

Course Number: 20003220

Credit: 1.00

Grade Level: 9-12

Major Concepts/Content

The PRE-Advanced International Certificate of Education (AICE) Biology will provide opportunities to students for general exploratory experiences and activities in the fundamental concepts of life. Introductory topics will include but not be limited to: the scientific method, laboratory apparatus usage and safety, biochemistry, cell biology, genetics, botany, zoology, human anatomy and physiology, and ecological relationships. This course will follow the Cambridge prescribed curriculum for PRE-AICE Biology.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: *Earth/Space or Environmental Science and/or Science Department approval.*

SPECIAL NOTE: For Fort Lauderdale High School Only.

Course Title: AICE Biology I

Course Number: 20003210

Credit: 1.00

Grade Level: 9-12

Major Concepts/Content

The Advanced International Certificate of Education (AICE) Biology will provide opportunities to students for general exploratory experiences and activities in the fundamental concepts of life. Topics will include but not be limited to: the scientific method, laboratory apparatus usage and safety, biochemistry, cell biology, genetics, botany, zoology, human anatomy and physiology, and ecological relationships. This course will follow the Cambridge prescribed curriculum for AICE Biology.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: Earth/Space or Environmental Science and or Pre AICE Biology and/or Science Department approval.

SPECIAL NOTE: For Fort Lauderdale High School Only.

Course Title: Marine Science I (R)

Course Number: 20025000

Credit: 1.00

Grade Level: 10-12

Major Concepts/Content

The purpose of this course is to provide an overview of the unique characteristics of the marine environment by exploring the physical and biological characteristics of seawater. Topics will include the ocean's present and potential resources, marine biology interactions with technology and society, and interrelationships between man and the ocean environment.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: Integrated Science I and II, or a Biological Science.

SPECIAL NOTE: NCAA

Course Title: Marine Science II (R)

Course Number: 20025200

Credit: 1.00

Grade Level: 10-12

Major Concepts/Content

The purpose of this course is to continue an in-depth study of the marine environment. Topics will include marine geological features, ecological chains, webs and cycles, chemical and physical properties of ocean waters, and the relationship between oceans and climate.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: *Marine Science I*

SPECIAL NOTE: NCAA.

Course Title: Marine Science Honors I (A)

Course Number: 20025100

Credit: 1.00

Grade Level: 10-12

Major Concepts/Content

The purpose of this course is to provide an advanced overview of the unique characteristics of the marine environment by exploring the physical and biological characteristics of seawater. Topics will include the ocean's present and potential resources, marine biology interactions with technology and society, and interrelationships between man and the ocean environment.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: *Integrated Science I and II or a Biological Science plus Science Department approval.*

SPECIAL NOTE: NCAA

Course Title: Marine Science II Honors (A)

Course Number: 20025300

Credit: 1.00

Grade Level: 10-12

Major Concepts/Content

The purpose of this course is to continue an in-depth advanced study of the marine environment. Topics will include marine geological features, ecological chains, webs and cycles, chemical and physical properties of ocean waters, and the relationship between oceans and climate.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE *Successful completion of Marine Science I plus Science Department approval.*

SPECIAL NOTE: NCAA

Course Title: Physical Science (R)

Course Number: 20033100

Credit: 1.00

Grade Level: 10-12

Major Concepts/Content

Physical Science will provide opportunities for students to investigate the introductory concepts of physics and chemistry. Topics will include but not be limited to: dynamics, classification, interaction of matter, the periodic table, forms of energy, electricity and magnetism, chemical interactions, nuclear reactions, and career opportunities.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: *Integrated Science I, or an Earth/Space Science, or a Biological Science.*

SPECIAL NOTE: NCAA

Course Title: Physical Science Honors (A)

Course Number: 20033200

Credit: 1.00

Grade Level: 10-12

Major Concepts/Content

Physical Science Honors will provide opportunities for students to quantitatively investigate the introductory concepts of physics and chemistry. Topics will include but not be limited to: dynamics, classification and interaction of matter, the periodic table, forms of energy, electricity and magnetism, chemical interactions, nuclear reactions, and career opportunities. Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: *Concurrent enrollment in Algebra I and Science Dept. approval.*

SPECIAL NOTE: NCAA

Course Title: Anatomy and Physiology (R)

Course Number: 20003500

Credit: 1.00

Grade Level: 10-12

Major Concepts/Content

Anatomy and Physiology will provide students with general exploratory and advanced activities in structures and functions of the components of the human body. Topics will include but not be limited to: anatomical terminology, cells and tissues, systems of the body, disease and inheritance.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: *Integrated Science I and II, or Biology I, Biology Technology, or Biology I Honors.*

SPECIAL NOTE: NCAA

Course Title: Anatomy and Physiology Honors (A)

Course Number: 20003600

Credit: 1.00

Grade Level: 10-12

Major Concepts/Content

Anatomy and Physiology Honors will provide students with advanced exploratory activities in the structure and function of the components of the human body. Topics will include, but not be limited to: anatomical terminology, cells and tissues, systems of the body, disease and inheritance.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus and safety are an integral part of this course.

PREREQUISITE: *Integrated Science I and II, or Biology I, Biology Technology, or Biology I Honors and Science Department approval.*

SPECIAL NOTE: NCAA

Course Title: Ecology (R)

Course Number: 20003800

Credit: 1.00

Grade Level: 10-12

Major Concepts/Contents

Ecology is designed to provide students with a study of the natural mutual relationships between organisms and other factors comprising their environment. Topics will include but not be limited to: the biotic and abiotic environment, food chains and webs, energy relationships, biogeologic cycles, populations and ecosystems, biogeography, and pollution.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: *Integrated Science I, or Biology I, Biology Technology, or Biology I Honors.*

SPECIAL NOTE: NCAA

Course Title: AICE Environmental Science

Course Number: 20013810

Credit: 1.00

Grade Level: 10-12

Major Concepts/Contents

AICE Environmental Science is designed to provide students with a study of the natural mutual relationships between organisms and other factors comprising their environment. Topics will include but not be limited to: the biotic and abiotic environment, food chains and webs, energy relationships, biogeologic cycles, populations and ecosystems, biogeography, and pollution. AICE Environmental Science will follow the Cambridge Curriculum.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: *Integrated Science I, or Biology I, Biology Technology, or Biology I Honors.*

SPECIAL NOTE: *For Fort Lauderdale High School Only.*

Course Title: Chemistry I (R)

Course Number: 20033400

Credit: 1.00

Grade Level: 9-12

Major Concepts/Content

Chemistry I will provide opportunities for students to study the composition, properties, and changes associated with matter. Topics will include but not be limited to: classification and structure of matter, atomic theory, the periodic table, bonding, chemical formulas, chemical reactions, balanced equations, behavior of gases, physical changes, acids, bases, and salts.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: *Successful completion of Algebra 1*

SPECIAL NOTE: NCAA.

Course Title: Chemistry I Honors (A)

Course Number: 20033500

Credit: 1.00

Grade Level: 10-12

Major Concepts/Content

Chemistry I Honors will provide students with an opportunity to study the composition, properties and changes associated with matter. Topics will include but not be limited to: heat, changes of matter, atomic structure, bonding, the periodic tables, formulas, equations, mole concept, gas laws, reactions, solutions, equilibrium systems, and oxidation reduction reactions.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: *Successful completion of Algebra 1 and Science Dept. approval.*

SPECIAL NOTE: NCAA.

Course Title: AICE Chemistry

Course Number: 20033710

Credit: 1.00

Grade Level: 10-12

Major Concepts/Content

Advanced international Certificate of Education (AICE) Chemistry I will provide students with an opportunity to study the composition, properties and changes associated with matter. Topics will include but not be limited to: heat, changes of matter, atomic structure, bonding, the periodic tables, formulas, equations, mole concept, gas laws, reactions, solutions, equilibrium systems, and oxidation reduction reactions. AICE chemistry will follow the prescribed Cambridge AICE Chemistry curriculum

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: *Successful completion of Algebra 1 and Science Dept. approval.*

SPECIAL NOTE *For Fort Lauderdale High School Only.*

Course Title: Principles of Technology I (R)

Course Number: 20036000

Credit: 1.00
Grade Level: 10-12

Major Concepts/Content

Principles of Technology I will provide students with an understanding of the principles of physics through actual technical applications. The content will emphasize “hands’ on” labs approximately 40% of the total allotted time. The four energy systems (mechanical, fluid, electrical, thermal) will be studied concurrently through the individual application of the following principles: force, work, rate, resistance, energy, power, and force transformers. Analogies will then be made among the four energy systems to obtain a better understanding of how each principle functions in a particular energy system. Topics will include, but not be limited to: force, work, rate, resistance, energy, power, and force transformers.

Laboratory activities will emphasize, but not be limited to, equipment and instruments used in industry. The use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: *Concurrent enrollment in Algebra I and Science Dept. approval.*

SPECIAL NOTE: *This course is the first of a two year sequence of courses. Together they satisfy the physics credit. NCAA.*

Course Title: Principles of Technology II (R)
Course Number: 20036100
Credit: 1.00
Grade Level: 10-12

Major Concepts/Content

Principles of Technology II will provide students with an understanding of Physics through the study of actual technical applications. The content will emphasize “hands-on” laboratory activities approximately 40% of the allotted time. The four energy systems: mechanical, fluid, electrical, and thermal will be studied concurrently through the individual application of the following principles: momentum, waves, and vibrations, energy converters, transducers, radiation, and time constants. Analogies will then be made between the four energy systems to obtain a better understanding of how each principle functions in a particular energy system.

Laboratory activities will emphasize, but not be limited to, equipment and instruments used in industry. The use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: *Algebra I and Science Dept. approval.*

SPECIAL NOTE: *This course is the second of a two-year sequence of courses, Principles of Technology I and II. Together they equate to one physics credit. Earning credit in Principles of Technology I and II precludes earning credit in Physics. NCAA.*

Principles of Technology I and II taken sequentially, equate to one credit of Physics I and as one unit of an academic core course in the Florida State University System.

Course Title: Physics I (R)
Course Number: 20033800
Credit: 1.00

Grade Level: 10-12

Major Concepts/Content

Physics I will provide opportunities to student for an introductory study of the theories and laws governing the interaction of matter, energy, and the forces of nature. Topics will include but not be limited to: kinematics, dynamics, energy, work and power, heat, thermodynamics, wave characteristics, light, electricity, magnetism, and nuclear physics.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: *Successful completion of Algebra 1*

SPECIAL NOTE: NCAA.

Course Title: Physics I Honors (A)

Course Number: 20033900

Credit: 1.00

Grade Level: 10-12

Major Concepts/Content

Physics I Honors will provide students with an in depth study of the theories and laws governing the interaction of matter, energy, and the forces of nature. Topics will include but not be limited to: kinematics, dynamics, energy, work, power, heat and thermodynamics, wave characteristics, light, electricity, magnetism, and nuclear physics.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: *Concurrent enrollment in Algebra 1I and Science Dept. approval.*

SPECIAL NOTE: NCAA

Course Title: Pre-AICE Physics

Course Number: 20034320

Credit: 1.00

Grade Level: 10-12

Major Concepts/Content

PRE-Advanced International Certificate of Education Physics I will provide students with an introductory study of the theories and laws governing the interaction of matter, energy, and the forces of nature. Topics will include but not be limited to: kinematics, dynamics, energy, work, power, heat and thermodynamics, wave characteristics, light, electricity, magnetism, and nuclear physics. PRE-AICE Physics will follow the Pre-AICE Cambridge curriculum.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: *Concurrent enrollment in Algebra 1I and/or Science Dept. approval.*

SPECIAL NOTE: *For Fort Lauderdale High School Only.*

Course Title: AICE Physics

Course Number: 20034310

Credit: 1.00

Grade Level: 10-12

Major Concepts/Content

Advanced International Certificate of Education Physics I will provide students with an in depth study of the theories and laws governing the interaction of matter, energy, and the forces of nature. Topics will include but not be limited to: kinematics, dynamics, energy, work, power, heat and thermodynamics, wave characteristics, light, electricity, magnetism, and nuclear physics. AICE Physics will follow the AICE Cambridge curriculum.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: *Concurrent enrollment in Algebra 1I and/or Science Dept. approval. Pre AICE Physics suggested.*

SPECIAL NOTE: *For Fort Lauderdale High School Only.*

Course Title: **Biology II (A)**

Course Number: **20003300**

Credit: **1.00**

Grade Level: **10-12**

Major Concepts/Content

Biology II Honors will provide opportunities to students to continue to expand the biological concepts introduced in prerequisite courses. Topics will include but not be limited to: properties of life, research into current scientific problems and techniques, population dynamics, species continuity and molecular genetics, comparative plant, animal morphology and physiology, cellular respiration, and careers in biological science.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: *Integrated Science I and II, or Biology, Biology Technology or Biology Honors and Science Dept. approval.*

SPECIAL NOTE: *NCAA.*

Course Title: **Chemistry II (A)**

Course Number: **20033600**

Credit: **1.00**

Grade Level: **10-12**

Major Concepts/Content

Chemistry II Honors will provide opportunities for students to continue to expand the study of chemical concepts introduced in the prerequisite chemistry course and will introduce new topics. Topics will include but not be limited to: pH and ionic equilibrium kinetics and thermodynamics, nuclear chemistry, organic and biochemistry, and descriptive inorganic chemistry.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: *Integrated Science I and II, or Chemistry I or Chemistry I Honors and Science Dept. approval*

SPECIAL NOTE: *NCAA.*

Course Title: **Physics II (A)**

Course Number: **20034100**

Credit: **1.00**

Grade Level: **10-12**

Major Concepts/Content

Physics II Honors will provide opportunities for students to continue to expand the study of physical concepts introduced in the prerequisite physics course and will introduce new topics. Topics will include but not be limited to: astrophysics, relativity, fluid dynamics, heat, and laws of thermodynamics, Kirchhoff's Rules, magnetic fields, electromagnetic induction, and quantum mechanics.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: *Integrated Science I, II, and III, or Physics I or Physics I Honors, concurrent enrollment in Algebra II and Science Dept. approval.*

SPECIAL NOTE: **NCAA**

Course Title: **Zoology (R)**

Course Number: **20004100**

Credit: **1.00**

Grade Level: **10-12**

Major Concepts/Content

Zoology is designed to provide students with an in-depth study of the animal kingdom. Topics will include, but not be limited to: animal cell structure and function, animal genetics, animal classification and use of the taxonomic key, comparative invertebrate anatomy and physiology, comparative vertebrate and physiology, animal behavior, life cycles, and animal interrelationships with man.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: *Integrated Science I and II, Biology, Biology Technology, or Biology I Honors.*

SPECIAL NOTE: **NCAA.**

Course Title: **Genetics (R)**

Course Number: **2000440**

Credit: **1.00**

Grade Level: **10-12**

Major Concepts/Content

Genetics is designed to bring insight into the world of DNA, Gene mapping, genetic technology and other applications and use of genetic material. Students will study current trends in scientific research while developing a full understanding of the biological processes that duplicate and transmit genetic material.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE:; *Biology, or Biology I Honors.*

SPECIAL NOTE: **NCAA.**

Course Title: **Research I (A)**

Course Number: **17003000**

Credit: **.50**

Grade Level: 9-12

Major Concepts/Content

Science Research I Honors is designed to provide students with research experiences in science including types of research and their relationship to science and the scientific approach. Students will have an opportunity to identify and describe an individualized research project, establish a research design, and employ the appropriate statistics in the completion of the research paper. Students will submit a completed research paper to a science competition.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: *Science Dept. approval*

SPECIAL NOTE: *NCAA.*

Course Title: Research II (A)

Course Number: 17003100

Credit: .50

Grade Level: 9-12

Major Concepts/Content

Science Research II Honors is designed to provide students with research experiences in science including types of research and their relationship to science and the scientific approach. Students will have an opportunity to identify and describe an individualized research project, establish a research design, and employ the appropriate statistics in the completion of the research paper. Sequential courses will provide more rigorous training in statistics and research techniques. Student will submit a completed research paper to a science competition.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: *Science Research 1 and Science Dept. approval.*

SPECIAL NOTE: *NCAA.*

Course Title: Research III (A)

Course Number: 17003200

Credit: .50

Grade Level: 10-12

Major Concepts/Content

Research III Honors is designed to provide students with research experiences in science including types of research and their relationship to science and the scientific approach. Students will have an opportunity to identify and describe an individualized research project, establish a research design, and employ the appropriate statistics in the completion of a research paper. Students will submit the completed research paper to a science competition.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: *Science Research II and Science Dept. approval.*

SPECIAL NOTE: *NCAA.*

Course Title: Research IV (A)

Course Number: 17003300

Credit: .50

Grade Level: 10-12

Major Concepts/Content

Research IV Honors is designed to provide students with research experience in science including types of research and their relationship to science and the scientific approach. Students will have an opportunity to identify and describe an individualized research project, establish a research design, and employ the appropriate statistics in the completion of a research paper. Students will submit the completed research paper to a science competition.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: Science Research III and Science Dept. approval.

SPECIAL NOTE: NCAA.

Course Title: Research V (A)

Course Number: 17003400

Credit: 1.00

Grade Level: 11-12

Major Concepts/Content

Research V Honors is designed to provide students with research experiences in science including types of research and their relationship to science and the scientific approach. Students will have an opportunity to identify and describe an individualized research project, establish a research design, and employ the appropriate statistics in the completion of a research paper. Students will submit the completed research paper to a science competition.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: Science Research IV and Science Dept. approval.

SPECIAL NOTE: NCAA.

Course Title: Research VI

Course Number: 17003500

Credit: 1.00

Grade Level: 11-12

Major Concepts/Content

Research VI Honors is designed to provide students with research experiences in science including types of research and their relationship to science and the scientific approach. Students will have an opportunity to identify and describe an individualized research project, establish a research design, and employ the appropriate statistics in the completion of a research paper. Students will submit a completed research paper to a science competition.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: Science Research V and Science Dept. approval.

SPECIAL NOTE: NCAA.

Course Title: Advanced Placement Biology (A)

Course Number: 20003400

Credit: 1.00

Grade Level: 10-12

Major Concepts/Content

Advanced Placement Biology will provide students with a college level course in biology and will prepare the student to seek credit and/or appropriate placement in college biology courses. Topics will include but not be limited to: molecular and cellular biology, organismal biology, and population biology.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: *Integrated Science I and II, or Biology I, Biology Technology, or Biology Honors, and Chemistry 1, plus Science Dept. approval.*

SPECIAL NOTE: NCAA.

Course Title: Advanced Placement Environmental Science (A)

Course Number: 20013800

Credit: 1.00

Grade Level: 10-12

Major Concepts/Content

Advanced Placement Environmental Science will provide students with a college level course in environmental science and will prepare students to seek credit and /or appropriate placement in college environmental science courses.

Topics will include but not be limited to: ecosystem dynamics, biodiversity, dimensions and causes of population growth, natural cycles, pollution, and resources

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: *Integrated Science I and II, or Biology I, Biology Technology, or Biology Honors, plus Science Dept. approval.*

SPECIAL NOTE: NCAA.

Course Title: Advanced Placement Chemistry (A)

Course Number: 20033700

Credit: 1.00

Grade Level: 10-12

Major Concepts/Content

Advanced Placement Chemistry will provide students with a college level course in chemistry and will prepare the student to seek credit and/or appropriate placement in college chemistry courses.

Topics will include but not be limited to: structure of matter, states of matter, chemical reactions, and descriptive chemistry.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: *Integrated Science I and II, or Chemistry I, plus Algebra I, and Science Dept. approval*

SPECIAL NOTE: NCAA.

Course Title: Advanced Placement Physics B (A)

Course Number: 20034200

Credit: 1.00
Grade Level: 10-12

Major Concepts/Content

Advanced Placement Physics will provide students with a college level course in physics and will prepare students to seek credit and/or appropriate placement in college physics courses. Topics will include but not be limited to: kinematics, Newton's Laws of Motion, conservation laws in classical mechanics, torque, rotational equilibrium, gravitation, oscillation, kinetic theory and thermodynamics, electrostatics, electric currents, magnetism, waves and optics, and modern physics.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: *Integrated Science I, II and III, or Physics I. Trigonometry as a co-requisite and Science Dept. approval.*

SPECIAL NOTE: NCAA.

Course Title: Advanced Placement Physics C: Electricity and Magnetism (A)

Course Number: 2003440

Credit: 0.50

Grade Level: 11-12

Major Concepts/Content

Advanced Placement Physics (C) will provide students with a college level course in physics and will prepare students to seek credit and/or appropriate placement in college physics courses. Topics will include but not be limited to: electricity and magnetism, electrostatics, electric current and circuits, capacitance, magnetostatics, and electromagnetism.

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: *Integrated Science I, II and III, or Physics I. Calculus and Science Dept. approval are co-requisites.*

SPECIAL NOTE: NCAA.

Course Title: Advanced Placement Physics C: Mechanics (A)

Course Number: 2003450

Credit: 0.50

Grade Level: 11-12

Major Concepts/Content

Advanced Placement Physics (C) will provide students with a college level course in physics and will prepare students to seek credit and/or appropriate placement in college physics courses. Topics will include but not be limited to: (a) mechanics-kinetics, Newton's Laws of Motion, work, energy, power, systems of particles, statics, rotational motion, and oscillations gravitation

Laboratory activities that include the use of the scientific method, measurement, laboratory apparatus, and safety are an integral part of this course.

PREREQUISITE: *Integrated Science I, II and III, or Physics I. Calculus and Science Dept. approval are co-requisites.*

SPECIAL NOTE: NCAA.

Course Title: Biology I Preinternational Baccalaureate (A)

Course Number: 20008000

Credit: 1.00

Grade Level: 9-12

Major Concepts/Content

Biology I, Preinternational Baccalaureate will focus on accelerated biology with related earth/space science topics. The content should include, but not be limited to, biological and mineral classification systems, theories of the origin of the universe, solar system, and life, cell biology, biological and geological changes through time, Earth's major biomes, ecological relationships, fundamentals of biochemistry, species variation, populations and adaptation. Laboratory activities that include the use of scientific method, measurement, laboratory apparatus, and safety are an integral part of the course.

PREREQUISITE: *Admission to the International Baccalaureate Program.*

SPECIAL NOTE: NCAA.

Course Title: Biology II International Baccalaureate (A)

Course Number: 20008100

Credit: 1.00

Grade Level: 10-12

Major Concepts/Content

Biology II, International Baccalaureate will provide a study of the facts, principles, and processes of biology, and the collection, interpretation, and formulation of hypotheses from available data. The content should include, but not be limited to, that which is designated in the biology syllabus of the International Baccalaureate and the Advanced Placement Program. Laboratory activities will include selected topics in the content, such as the scientific method, measurement, proper use of instruments, laboratory apparatus, and safety procedures.

PREREQUISITE: *Admission to the International Baccalaureate Program.*

SPECIAL NOTE: NCAA.

Course Title: Biology III International Baccalaureate (A)

Course Number: 20008200

Credit: 1.00

Grade Level: 11-12

Major Concepts/Content

Biology III, International Baccalaureate will provide a study of the facts, principles, and processes of biology, and the collection, interpretation, and formulation of hypotheses from available data. The content should include, but not be limited to, that which is designated in the biology syllabus of the International Baccalaureate and the Advanced Placement Program. Laboratory activities will include selected topics in the content. These will include the scientific method, measurement, proper use of instruments, and laboratory apparatus, and safety procedures.

PREREQUISITE: *Admission to the International Baccalaureate Program.*

SPECIAL NOTE: NCAA.

Course Title: **Chemistry I Pre international Baccalaureate (A)**

Course Number: **20038000**

Credit: **1.00**

Grade Level: **9-12**

Major Concepts/Content

Chemistry I, Preinternational Baccalaureate will focus on accelerated chemistry with related earth/space science topics. The content should include, but not be limited to, atomic structure, energy, matter and order on Earth and in space, the periodic table, bonding, chemical nomenclature, the mole concept, reaction rates and equilibrium, electrochemistry and organic chemistry. Laboratory activities which include the scientific method, and measurement are an integral part of the course.

***PREREQUISITE:** Algebra I and admission to the International Baccalaureate Program.*

***SPECIAL NOTE:** NCAA.*

Course Title: **Chemistry II International Baccalaureate (A)**

Course Number: **20038100**

Credit: **1.00**

Grade Level: **10-12**

Major Concepts/Content

Chemistry II, International Baccalaureate will provide an in-depth, quantitative study of the development and application of chemistry principles, concepts, and experimental methods. The content will include, but not be limited to, that determined by the chemistry syllabus of the International Baccalaureate and the Advanced Placement Program. Laboratory experimentation will constitute 40% of this course. Selected topics in the content will be investigated. Also included will be proper use of instruments and laboratory apparatus, safety, and the application of the scientific method.

***PREREQUISITE:** Algebra II and admission to the International Baccalaureate Program.*

***SPECIAL NOTE:** NCAA.*

Course Title: **Chemistry III International Baccalaureate (A)**

Course Number: **20038200**

Credit: **1.00**

Grade Level: **11-12**

Major Concepts/Content

Chemistry III, International Baccalaureate will provide an in-depth, quantitative study of the development and application of chemistry principles, concepts, and experimental methods. The content will include, but not be limited to, that determined by the chemistry syllabus of the International Baccalaureate and the Advanced Placement Program.

***PREREQUISITE:** Algebra II and admission to the International Baccalaureate Program.*

***SPECIAL NOTE:** NCAA.*

Course Title: Physics III International Baccalaureate (A)
Course Number: 20038500
Credit: 1.00
Grade Level: 10-12

Major Concepts/Content

Physics III, International Baccalaureate will provide a college level course in physics and prepare the student to seek credit and/or appropriate placement in college physics courses. The content should include, but not be limited to, mechanics, molecular behavior, wave motion and light, electricity and magnetism, models and properties of atoms, atomic and nuclear physics. Laboratory work involves application of the scientific method, quantitative relationships, and proper use of laboratory apparatus.

PREREQUISITE: *Algebra II and admission to the International Baccalaureate Program.*

SPECIAL NOTE: *NCAA.*

Course Title: Pre-AICE Chemistry
Course Number: 2003372
Credit: 1.00
Grade Level: 9-12

Major Concepts/Content

The intent of this course is that students will obtain a thorough understanding of the finite life of the world's resources and hence the need for recycling and conservation, economic considerations in the chemical industry, such as the availability and costs of raw materials and the importance of chemistry in industry and everyday life.

The content should include, but not be limited to: The particulate nature of matter; Experimental techniques; Atoms, elements and compounds; Electricity and chemistry; Chemical changes; Chemical reactions; Acids, bases and salts; The periodic table; Metals; Air and water; Sulfur; Carbonates, and Organic Chemistry. These requirements include, but are not limited to, the benchmarks from the Sunshine State Standards that are most relevant to this course.

Laboratory investigations, which include the use of scientific research, measurement, laboratory technologies, and safety procedure are an integral part of this course. The International General Certificate of Secondary Education (IGCSE) is an international pre-university curriculum and examination system administered by the Local Examinations Syndicate at the University of Cambridge. The IGCSE courses include embedded assessments and an internationally scored end-of-course assessment.

PREREQUISITE: *None.*

Course Title: Astronomy
Course Number: 20013500
Credit: 1.00

Grade Level: 9-12

Major Concepts/Content

The purpose of this course is to enable students to develop and apply knowledge of the universe and compare the conditions, properties, and motions of bodies in space. Emphasis shall be placed on concepts basic to Earth, including materials, processes, history, and the environment. The content should include, but not be limited to, the following: implementation of scientific habits of mind, application of scientific knowledge, methodology, and historical context to solve problems, use of laboratory technologies, historical developments from ancient cultures to the present instruments for collection of astronomical data, celestial spheres, ascension and declination, planets, asteroids, and comets, effects of the motions of the Earth, effects of the Earth-Moon system, the sun, astronomical measurements, stars, cosmology, connections between astronomy, technology, and society, space flight and exobiology

SPECIAL NOTE: NONE

Course Title: Astronomy S/G Honors

Course Number: 20209100

Credit: 1.00

Grade Level: 9-12

Major Concepts/Content

The purpose of this course is to enable students to develop and apply knowledge of the universe and compare the conditions, properties, and motions of bodies in space. Emphasis shall be placed on concepts basic to Earth, including materials, processes, history, and the environment. The content should include, but not be limited to, the following: implementation of scientific habits of mind, application of scientific knowledge, methodology, and historical context to solve problems, use of laboratory technologies, historical developments from ancient cultures to the present instruments for collection of astronomical data, celestial spheres, ascension and declination, planets, asteroids, and comets, effects of the motions of the Earth, effects of the Earth-Moon system, the sun, astronomical measurements, stars, cosmology, connections between astronomy, technology, and society, space flight and exobiolog

Special Note: Laboratory investigations of selected topics in the content which include the use of the scientific method, measurement, laboratory apparatus and safety are an integral part of the course. Use of satellite imagery, image processing techniques, and model development with behavior-over-time graphs will be incorporated into the course.

Subject Area: Science
Course Number: 2002480
Course Title: Forensic Sciences I
Credit: 1.0

~~Will meet graduation requirement for Science~~

Major Concepts/Content. The purpose of this course is to provide opportunities to develop knowledge of biology and physical sciences through forensic science, and enable students to associate this knowledge with real-life applications. The content should include, but not be limited to, the following: implementation of scientific knowledge, methodology, and historical context to solve problems, use of laboratory technologies, chemical basis of heredity and biotechnology, connections between the sciences and technology, society, and the environment, matter, energy, and the processes of life, medical technologies and careers, forces and motion and the nature of matter. Laboratory investigations of selected topics in the content, which also include use of the scientific method, measurement, laboratory apparatus, and safety procedures, are an integral part of this course. Inquiry into current technology and applications of scientific principles and their relationship to society and the environment is encouraged.

Prerequisites: NONE

Subject Area: Science
Course Number: 2002490
Course Title: Forensic Sciences II
Credit: 1.0

~~Will meet graduation requirement for Science~~

Major Concepts/Content. The purpose of this course is to provide opportunities to expand student knowledge of biology and physical sciences in a second year of forensics, and enable students to associate this knowledge with real-life applications. The content should include, but not be limited to, the following: implementation of scientific knowledge, methodology, and historical context to solve problems, use of laboratory technologies, chemical basis of heredity, DNA fingerprinting, and biotechnology, connections between the sciences and technology, society, and the environment, matter, energy, and the processes of life, investigative technologies and careers, forces and motion, the nature of matter. Laboratory investigations of selected topics in the content, which also include use of the scientific method, measurement, laboratory apparatus, and safety procedures, are an integral part of this course. Inquiry into current technology and applications of scientific principles and their relationship to society and the environment is encouraged.

Prerequisites: Forensics

- **Subject Area:** Science
- **Course Number:** 20024801
- **Course Title:** Local Honors Forensic Sciences I
- **Credit:** 1.0

- **Does not meet graduation requirement for Science**

- **Major Concepts/Content.** The purpose of this course is to provide opportunities to develop knowledge of biology and physical sciences through forensic science, and enable students to associate this knowledge with real-life applications - and at a high level of rigor and content. The content should include, but not be limited to, the following: implementation of scientific knowledge, methodology, and historical context to solve problems, use of laboratory technologies, chemical basis of heredity and biotechnology, connections between the sciences and technology, society, and the environment, matter, energy, and the processes of life, medical technologies and careers, forces and motion and the nature of matter. Laboratory investigations of selected topics in the content, which also include use of the scientific method, measurement, laboratory apparatus, and safety procedures, are an integral part of this course. Inquiry into current technology and applications of scientific principles and their relationship to society and the environment is encouraged. A science research project, science fair project or science research paper is recommended. It is recommended that all honors courses participate in some form or level of scientific research and application.

- **Prerequisites:** NONE

Subject Area: Science
Course Number: 2002540
Course Title: Solar Energy and Alternatives
Credit: 1.0

Major Concepts/Content. Solar Energy and Alternatives is an integrated **honors** course that covers a comprehensive study of energy, its categories, and its forms. Students will gain an understanding of the law of conservation of energy and the thermodynamics laws. They will investigate energy resources, energy production, conversion, consumption, energy conservation, efficiency, and its environmental effects. Students will relate their investigations to sustainable development.

The main focus of the course is on solar energy and other renewable alternative resources such as wind, hydroelectric, biomass, geothermal and hydrogen. The course is student-centered and has a project-based curriculum; it implements hands-on and minds-on experiences where, through a series of short-term and long-term experiments and

research, students will investigate several aspects of solar energy such as solar heat and solar electricity (photovoltaics).

The experimental and research sections will focus on energy conservation, insulation, passive and active water heating, domestic design, water purification, solar cooking and food drying. Additional investigations will address solar electricity through photovoltaic panels, solar electricity storage, solar thermal electricity, solar mobility and electric vehicles.

Prerequisites: None

Subject Area: Science
Course Number: 20003700
Course Title: Botany
Credit: 1.0

Major Concepts/Content. The purpose of this course is to enable students to develop in-depth knowledge of the plant kingdom. The content should include, but not be limited to, the following: implementation of scientific habits of mind
application of scientific knowledge, methodology, and historical context to solve problems
use of laboratory technologies
terminology specific to the field of study
cell structures and physiology
inheritance and Mendelian genetics
change and adaptation
taxonomy
vascular and non-vascular plant anatomy
life cycles
relationships between plants and humans
connections between botany, technology, society and the environment

Laboratory investigations of selected topics in the content, which also include use of the scientific method, measurement, laboratory apparatus, and safety procedures, are an integral part of this course. Inquiry into current technology and applications of botanical principles and their relationship to the environment is encouraged.

Prerequisites: None