SCIENCE

At this time, DeForest High School requires 2 science credits for graduation. It is recommended that incoming freshman should take physical science which will prepare them for biology as well as the chemistry, physics, earth science and environmental science electives.

At DeForest, you are required to take:

9th Grade: Physical Science (1 credit)

10th Grade: Biology (1 credit)

11th and 12th: Science electives: Chemistry 1; Chemistry 1 Honors; AP Chemistry; Physics; AP Physics; Human Anatomy and Physiology; Advanced Biology; Molecular Biology; Earth and Space Science; and Environmental Science.

FRESHMAN COURSE

Physical Science **6128** **Credit 1**

This is a year long introductory course in science. This course covers foundational concepts needed for further study in the areas of biology, chemistry, earth science, and physics. An emphasis is placed on hands-on activities and strengthening problem-solving skills. Students will begin by studying the nature of science and scientific methods. Subsequent units included energy and motion, the nature of matter, kinds of substances, interactions of matter, the study of waves (light and sound), and finally electricity and energy resources.

Prerequisite(s): Freshman standing

SOPHOMORE COURSE

Biology **6140** **Credit 1**

Biology is a yearlong course in life science. It fulfills the life science graduation requirement. It is designed to meet the needs of a wide range of interests and abilities (college, technical college, and non-college-bound students). Subject material includes life at the cellular level, ecology, genetics and heredity, evolution, diversity of life including microorganisms, plants and animals. Hands-on experiences will be provided throughout the year. Special projects may include collections, term papers, and lab report write ups, as well as outdoor environmental work, and model construction. Homework, tests, and lab work are assigned on a regular basis. Positive class participation is expected. Science literacy will be emphasized by reading and interpreting graphs, diagrams, etc.

Prerequisite(s): Sophomore standing, or approval by department

SCIENCE ELECTIVES

Chemistry I **6240** **Credit 1**

A yearlong course, chemistry deals with important changes in matter and the world around us. This class is lab-oriented; emphasizing problem-solving skills, math applications, and the proper use of lab equipment. A wide range of topics are taught including types of reactions, nanotechnology, and nuclear chemistry, as well as the basics such as structure of the atom and the mole.

Prerequisite(s): Successful completion of previous science course(s) and Core Connections Algebra

Chemistry I Honors **6246** **Credit 1**

This is a yearlong meant to prepare students who will most likely take a chemistry course in college. Topics taught include the mole and stoichiometry, structure of the atom, molecular orbitals and geometry, types of chemical reactions, and oxidation-reduction, as well as others. It is lab oriented.

Prerequisite(s): Successful completion (B or better) of Core Connections Algebra and previous science course(s)

Advanced Placement Chemistry **6443** **Credit 1**

This is a rigorous class designed to provide the equivalent of introductory chemistry at the college level. It will offer a broad background of information to those students pursuing any area of science, from engineering to medicine. The course will focus on learning basic fundamental chemical principals. Skills of problem solving, application of math concepts and mastering of key laboratory techniques are included. Laboratory experiences will be based on a college format. For students who pass the spring AP Exam, this class will enable them to take, as freshmen, a higher level chemistry and receive college credit for the work done here. (Check with your specific college to learn how this class will be granted credit).

Prerequisite(s): Successful completion of Chemistry I or Chemistry I Honors and Algebra II

Physics (trigonometry based) **6442** **Credit 1**

Physics is a yearlong course providing a solid foundation in classical mechanics and covering waves, optics, sound, electricity, magnetism and fluids if time permits. Students are taught how to problem solve through a variety of activities with strenuous and challenging questions. Hands-on-learning applications are provided by: traditional labs, computer simulations, computer aided measuring systems, relationship modeling with graphical analysis, demonstrations, applied projects.

Prerequisite(s): Concurrent enrollment in Algebra II, Pre-Calc, or higher. All exceptions must come with consent of the instructor.

Advanced Placement Physics (Calculus-based) 6445 Credit 1

Advanced Placement Physics (AP Physics) is a year-long course providing students preparation to take the AP-Physics C: Mechanics exam to receive university credit. The course is designed for students who plan to major in engineering, chemistry, computer science, or physics at the university. Many students taking calculus report that AP Physics helps them to understand calculus better. Concepts and applications will be oriented towards engineering and real-life applications. Through lab work, using computer-interfaced lab equipment, students will develop the mathematical models that make up physics. Concepts and applications of calculus will be introduced in parallel with the calculus class.

Prerequisite(s): Should be taken concurrently with any Calculus course. A's in preceding math classes highly recommended.

Advanced Biology 6141 Credit 1

A year long course with a more advanced approach to the study of biology. Selected students will participate in the study of biochemistry, cytology, microbiology, genetics, evolution, zoology, and botany. This class is a lab based science class, which requires analysis of many biological concepts. Laboratory techniques will include the dissection of a number of selected organisms. This course is designed for the college oriented student, or for those with a strong interest in the biological sciences.

Prerequisite(s): It is recommended you have a B average or higher. Successful completion of Biology and Chemistry/Chemistry Honors or concurrent enrollment. If Chemistry is not completed or student is not concurrently enrolling in Chemistry, instructor approval is required.

Biotechnology 6143 Credit 1

Biotechnology is an advanced elective course designed for students interested in the fundamentals of cell and molecular biology with applications in food, agriculture, and medicine. This course introduces students to basic techniques of DNA science including recombinant DNA, cloning, microbiology, fermentation, plant breeding, and genetics. There are many laboratory opportunities using current DNA manipulation techniques. Learning experiences will also provide opportunities for exploring ethical, moral, and legal issues in current biotechnology topics such as stem cells, genetic testing, and genetically modified foods. Students may earn advanced standing in the Madison College (MATC) Biotechnology Technician program.

Prerequisite(s): Must have completed Biology with a minimum grade of a B.

Earth and Space Science **6940** **Credit 1**

This lab-based yearlong course is designed to study many aspects of earth science. First semester revolves around Earth's movements in space, geology, plate tectonics, earthquakes, volcanoes and map-reading as well as energy sources and natural resources. There are many learning opportunities provided through labs, lectures, internet exercises and projects.

Second semester includes a study of astronomy, oceanography and meteorology. As with first semester, there are many opportunities for hands-on learning.

Prerequisite(s): Successful completion of Physical Science

Environmental Science **6546** **Credit 1**

The topics covered in this course will utilize current issues and connect with community resources while involving participants in service learning and project-based learning. The nature of environmental science is **interdisciplinary**. It embraces a variety of topics from different areas of study, including but not limited to biology, earth science, geography, chemistry, agriculture, economics, history, and literature. Major areas of study will include the study of ecological principles, history of the environmental movement, and the human role in the impact of resources. There will be field trips to local businesses and/or environmental sites. Other areas of study might include Wisconsin's role in the environmental movement; sustainable resources including those resources used in recreation, hunting, logging, mining; current issues involving renewable energy sources; careers that require background knowledge of environmental resources. There will be a culminating final project (rather than exam) of the student's choice.

Prerequisite(s): Successful completion of Physical Science (or Chemistry) and Biology. Other classes that are helpful but not necessary include Earth & Space Science and Conservation & Forestry.

Human Anatomy and Physiology **6151** **Credit 1**

Human anatomy and physiology studies the systems of the human body and their functions. The focus of study will be from the clinical perspective of the human body. Included in the study of each system will be the understanding of normal anatomy and physiology as well as the opportunity to investigate diseases of each system. The material will be presented in a variety of ways including but not limited to lecture, lab, (including the dissection of a number of selected organs), computer simulations and case studies. This course is designed for the college oriented student or anyone with a strong interest in the health sciences or understanding of the human body. It is recommended you have a minimum of a "C" average or higher in past science classes and have completed chemistry or take chemistry concurrently with human anatomy and physiology.

Prerequisite(s): Successful completion of Biology and Physical Science with a minimum grade of a "C" (or instructor's approval; Chemistry recommended

Medical Terminology **5204** **Credit ½**
Dual Credit Option

Medical Terminology is for students interested in pursuing careers in the medical field. The focus of the course is on communication using the medical language. Emphasis is on analyzing medical terms using word components (prefixes, suffixes, and word roots) and classifying terms by the structural organization of the body. Both the written and spoken formats for using language will be addressed including word construction, definition, spelling, and pronunciation of medical terms and interpretation of written materials. Introduction to operative, diagnostic, therapeutic and symptomatic terminology of all body systems, as well as systemic and surgical terminology, is included.

Prerequisite(s): Junior or Senior Standing. Recommendation by current science teacher or counselor; COMPASS scores of Pre-Algebra = 55; Reading = 75; Writing = 70

This is a dual-credit Madison College (MATC) course. Students who successfully complete the course may earn both DAHS and Madison College (MATC) credits.

Anticipated Costs: $75 for Workbook