

SCIENCE DEPARTMENT Senior High School



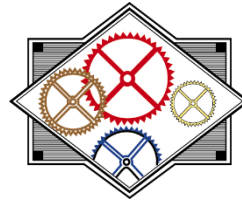
Arts &
Communications



Business, Management
Marketing & Technology



Health
Science



Engineering/Manufacturing
& Industrial Technology



Human
Services



Natural Resources
& Agriscience

VPAA – Meets Visual, Performing & Applied Arts Requirement

OLE – Meets Online Learning Experience Requirement

GR/MMC – Meets Graduation Requirements based on Michigan Merit Curriculum

SMR – Senior Math Related

21F – Course Available through Section 21F: Expanded Virtual Learning

C – Commitment Form

*CAREER ZONES - Broad groupings of careers that share similar characteristics and whose employment requirements call for many common interests, strengths, and competencies.

BIOLOGY I (GR/MMC/OLE) (21F) – D020

9, 10, 11, 12

1.0 credit

Biology I follow the Michigan Merit Curriculum as determined by the MI Department of Education. Students develop science literacy through inquiry, application of knowledge and reflection. Students delve into the wonders of the science of life through lecture, labs, and other hands-on activities. This course aims to provide students with information and perspective.

*Course content may address skills pertaining to these potential Career Zones: *Engineering, Manufacturing & Industrial Technology*

ADVANCED PLACEMENT BIOLOGY (GR/MMC/OLE/C) (21F) – D040

11, 12

1.0 credit

PREREQUISITE: Biology and Chemistry

Advanced Placement Biology is an introductory college level biology course. The curriculum, textbook and laboratory activities are equivalent or similar to those used in college. Students may earn college credit by successful achievement on the AP exam as determined by College Board. The course aims to provide students with the conceptual framework, factual knowledge, and analytical skills necessary to deal critically with the rapidly changing science of biology. Any student interested in the medical field or just interested in the science of life should enroll in this course.

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ANATOMY AND PHYSIOLOGY (GR/MMC/OLE) (21F) – D050

11, 12

1.0 credit

Want to know how your body really works?

Join Anatomy and Physiology—a full-year, hands-on science course where you'll dive into the amazing structure and function of the human body. Whether you're curious about what keeps your heart beating, how your brain sends signals, or why you breathe the way you do, this course brings it all to life through interactive labs, dissections, experiments, and digital simulations.

You'll learn how all the body's systems work together to keep you alive and healthy, while also gaining real-world knowledge that can help you make smarter choices about your own health. Plus, if you're thinking about a future in medicine, nursing, sports science, biology, or any health-related career, this is a great place to start.

Work with classmates, ask big questions, and build skills that will serve you in college and beyond. Ready to explore what's beneath the surface? This course is for you.

**Course content may address skills pertaining to these potential Career Zones: Engineering, Manufacturing & Industrial Technology*

ENVIRONMENTAL SCIENCE (GR/MMC/OLE) (21F)– D060

11, 12

0.5 credit

Environmental science explores Earth's natural systems, as well as how human activity affects the environment; students will apply the scientific method to investigate natural flows of chemicals, water and energy in terrestrial, aquatic, and atmospheric systems, and how humans impact these natural flows and systems. Students will learn methods for helping to make Earth a sustainable environment through stewardship and sound science. Students will be encouraged to discuss environmental problems and concerns through current events, projects, and laboratories.

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CHEMISTRY (GR/MMC/OLE) (21F) – D130

10, 11, 12

1.0 credit

This class deals with the composition of materials and the changes that they may undergo. The concepts, laws, and theories explaining the properties and behavior of elements and compounds are discussed. Laboratory experiences are an essential part of this course. This college prep class focuses on a broad spectrum of chemistry topics that include: Atomic Theory, Nuclear Chemistry, Organic Chemistry, Naming, The Periodic Table, Bonding, Reactions, Thermochemistry, Acid Base Chemistry, States of Matter, Kinetics and Equilibrium.

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ADVANCED PLACEMENT CHEMISTRY (GR/MMC/SMR/OLE/C) (21F) – D160

11, 12

1.0 credit

PREREQUISITE: Chemistry and Algebra II

AP Chemistry is a college level chemistry course. This course differs qualitatively from the usual first secondary school course in chemistry with respect to the kind of textbook used, the topics covered, the emphasis on chemical calculations and mathematical formulation of principles, and the kind of laboratory work done by the students. For some students, an AP Chemistry courses enables them to undertake, as freshmen, second-year work or to register for courses in other fields where general biology, chemistry, and physics is a prerequisite. For other students, the course fills the laboratory science requirement and frees time for other courses.

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FORENSIC SCIENCE I (GR/MMC/OLE) – D180 11, 12 0.5 credit

PREREQUISITE: Chemistry

Step into the shoes of a real-life crime scene investigator in this hands-on, action-packed Forensics course. Dive into the world of criminal investigations as you collect evidence, analyze fingerprints, decode mysterious substances, and reconstruct crime scenes just like the experts. Explore the science behind solving crimes through engaging labs, interactive simulations, and real-world case studies.

Experience fieldwork with mock crime scenes, guest speakers from law enforcement, and opportunities to use professional forensic tools and techniques. Connect classroom learning to real-world careers in criminal justice, biology, chemistry, and more. If you love solving puzzles, working with your hands, and uncovering the truth, this course will challenge and inspire you to think like a true forensic scientist.

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FORENSIC SCIENCE II (GR/MMC/OLE) – D185 11, 12 0.5 credit

PREREQUISITE: Forensic Science I

Take your forensic science skills to the next level in this advanced continuation of Forensic Science I. In this hands-on, investigation-driven course, students will build upon foundational concepts to explore specialized fields such as DNA analysis, toxicology, anthropology, ballistics, and crime scene reconstruction. Real-world case studies, labs, and advanced investigative simulations, students will apply scientific reasoning to complex forensic problems and strengthen their analytical, deductive, and laboratory skills. Guest speakers, mock crime scenes, and professional-grade forensic tools give students an authentic look into the careers of forensic scientists, crime lab technicians, and law enforcement professionals.

Designed for students who have completed Forensic Science I or possess a strong interest in criminal investigation and laboratory science, this course provides an in-depth, career-oriented experience that challenges students to think critically, work collaboratively, and solve crimes through evidence-based inquiry.

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ORGANIC CHEMISTRY (GR/MMC) – D190 11, 12 0.5 credit

PREREQUISITE: Chemistry

This is a semester class for those students who have successfully completed chemistry or AP Chemistry. Organic Chemistry is usually a second-year college class. This semester class will cover the fundamentals of organic chemistry that are taught in a first semester college organic course. Topics include but are not limited to: Structure and Bonding, Polar Covalent Bonds, Acids and Bases, Stereochemistry, Nomenclature, and Reactions. Organic Chemistry is needed for many science related majors and opens the doors to many careers in medicine, research, nursing, animal science, dietary science, engineering, pharmacy, forensics etc.

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PHYSICS (GR/MMC/OLE/SMR) (21F) – D210 11, 12 1.0 credit

This class deals with the natural world of matter and energy. Areas of physics covered include: classical mechanics, electricity & magnetism, waves, sound, optics, and nuclear physics. Conceptual knowledge of physics and physics problem solving will be assessed with homework, labs, and tests. An understanding of Algebra is necessary for success in the class; any trigonometry needed should be covered in the class. The course is strongly recommended for college bound students. Recommended that students take co-current with Algebra II or higher.

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ADVANCED PLACEMENT PHYSICS I – Algebra Based (GR/MMC/OLE/SMR/C) (21F) – D830A/B 11, 12 1.0 credit

PREREQUISITE: Geometry or concurrently taking Algebra II

AP Physics I- Algebra Based is a college level physics course. Students will learn about the foundational principals of physics as you explore Newtonian mechanics; work, energy, and power; mechanical waves and sound; and introductory, simple circuits. Students will do hands-on laboratory work to investigate phenomena.

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ADVANCED PLACEMENT PHYSICS C – MECHANICS (GR/MMC/C/SMR) (21F) – D235 12 1.0 credit

PREREQUISITE: Completed or Concurrently taking Calculus

AP Physics C – Mechanics similar to a college-level, calculus-based physics course. It is to be taken following first year algebra-based physics. The class is devoted to fundamental topics in classical Newtonian mechanics. The amount of calculus necessary for success is taught in the class. Students coming out of the courses should have a strong conceptual understanding of physics and well-developed skills in performing and analyzing laboratory experiments. They should also be able to apply their understanding to approach and solve problems that are essentially new to them. College based labs are included in the instruction and a variety of statistical analysis techniques are used. This is a very rigorous academic class which challenges students' intellect as well as their work ethic. It is most beneficial for those going into engineering or any science/mathematics related field.

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ASTRONOMY (GR/MMC/OLE) (21F) – D250 11, 12 0.5 credit

PREREQUISITE: Biology and 1 science credit

Astronomy is a one-semester course designed to explore humanity's place in the universe through scientific inquiry and critical thinking. Students will investigate the fundamental principles of astronomy, including the nature and behavior of celestial bodies, the physics that govern the cosmos, and the processes that shape planets and stars. Major topics include an Introduction to Astronomy, Astrophysics, Planetary Geology, Space Exploration, and Stellar Objects such as stars, nebulae, black holes, and galaxies.

Through an inquiry-focused approach, students will engage in hands-on investigations, modeling activities, and data analysis to connect astronomical concepts to their own observations and experiences.

Emphasis will be placed on developing scientific reasoning, using technology to collect and interpret data, and applying learned principles to real-world and cosmic phenomena.

By the end of the course, students will have a deeper understanding of the universe and humanity's ongoing exploration of it—equipped with the curiosity and skills to ask meaningful scientific questions about the cosmos.

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ADVANCED PLACEMENT ENVIRONMENTAL SCIENCE (GR/MMC/OLE/C) (21F) – D270 11, 12 1.0 credit

PREREQUISITE: Biology and Algebra I

Advanced Placement Environmental Science is a full-year, elective course for students with a strong interest in environmental science. Students will be challenged to analyze and interpret data and apply concepts to the solution of environmental problems. In addition, students will learn more about the environment in which they live in and the effect of man on the environment. Laboratory investigations will also be included to enhance the students' understanding of the concepts developed.

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