

COURSE DESCRIPTIONS 2011-2012

Mason High School

INCLUSION OF OFFERINGS DEPENDS UPON STUDENT INTEREST AND STAFF AVAILABILITY

SCIENCE

Classes of 2012 through Classes of 2013 are required to earn 3 credits of science.

- 1 credit in Physical Science
- 1 credit in Biology, or Animal Science, or AP Biology
- 1 credit in Physics or Chemistry

Classes of 2014 and beyond are required to earn 3 credits of science.

- 1 credit in Biological Sciences (Biology, Animal Science, or AP Biology)
- 1 credit in Chemistry or Applied Chemistry
- 1 credit in Physics or Integrated Science

Chemistry, AP Chemistry, Physics, and AP Physics may be able to count as math-related courses as long as they are taken in the student's senior year and are not counted as Science credits

Advanced Biology

1 trimester

Grade Level: 9 - 12

Course # 2510

Prerequisites: B or better in Biology A and Biology B

Advanced biology is designed for college bound students with a strong interest in life sciences or those pursuing a possible career in life science. Students will deepen their knowledge of molecular and environmental biology through laboratory exercises, case studies, lectures and real world applications. The nature of the course requires a great deal of independent study and preparation time, and students will be held to a higher standard than they may have experienced in the past.

Advanced Chemistry

1 trimester

Grade Level: 10 - 12

Course # 2511

Prerequisites: Algebra 1 and a B or better in Chemistry or teacher recommendation

The advanced chemistry course is designed for a college bound student wanting a challenge in the area of chemistry. This course will cover topics that are above and beyond a normal high school curriculum. Students will develop an understanding of chemistry concepts through reading, lecture, laboratory investigations, and problem solving activities. A scientific calculator is required for this course.

Agribusiness Management and Marketing

2 trimesters

Grade Level: 11 – 12

Course # 2601

Prerequisite: None

2602

This course will emphasize the planning and operation of a business. Students will gain basic knowledge of entrepreneurial activities and will learn how to keep financial records. Global and national marketing techniques will also be developed through trading and selling of commodities. While exploring careers in Agriscience and Natural Resources, students will also gain hands on experience to numerous employability skills needed for such areas. Students will also conduct individualized supervised experience projects.

Anatomy/PhysiologyCourse # 2401
#2402

2 trimesters

Grade Level: 10 – 12

Prerequisites: C+ or better in
Biology

This course is an advanced biology class designed to meet the needs of students who wish to learn the essentials of human anatomy and physiology. It is most helpful to college-bound students. Laboratory techniques are emphasized, including numerous dissections.

Animal ScienceCourse # 2201
2202

2 trimesters

Grade level: 9 - 12

Prerequisite: None

This course is designed as an introduction to Agriscience and Natural Resources for 9th to 12th grade students. Through the use of lecture, lab, and content specific activities, students will explore the anatomy and physiology of domesticated animals and develop an understanding of natural systems. FFA is an integral part of this course providing beneficial leadership training, educational opportunities and course related contests.

AP BiologyCourse # 2507
2508
2509

3 trimesters

Grade Level: 11 - 12

Prerequisites: B or better in Biology
and Chemistry & teacher
signature

The AP Biology course is designed to be the equivalent of a college introductory biology course. It will enrich the student's knowledge of biology and help students develop laboratory skills and techniques. It is based on the national Advanced Placement Program and students will be prepared to take the Advanced Placement test in Biology in early May. In this course, several sub-fields in biology will be explored. These subfields include Molecules and Cells, Heredity and Evolution, and Organisms and Populations. The units include biochemistry, cell structure and function, metabolism, cellular reproduction, genetics, molecular basis of inheritance, DNA technology, evolution, survey of the living world, plant physiology, animal physiology, and ecology.

AP ChemistryCourse # 2501
2502
2503

3 trimesters

Grade Level: 11 - 12

Prerequisites: B or better in
Chemistry & teacher signature

Advanced Placement Chemistry is a college level course for those interested in pursuing a career in the sciences. This class will be taught at a level equivalent to a first year college chemistry course. This is a RIGOROUS course that will cover the five major areas that have been outlined by the AP College Board: Structure of Matter, States of Matter, Reaction Types, Descriptive Chemistry, Laboratory Work, and Chemical Calculations. Laboratory work is a necessary and vital component of this class and will be conducted weekly and occasionally bi-weekly. In the laboratory setting students will be asked to make connections and show evidence of higher level thinking skills.

AP PhysicsCourse # 2504
2505
2506

3 trimesters

Grade Level: 11 - 12

Prerequisite: 1) Physics
2) Physics teacher recommendation

The AP Physics course includes both classical and modern physics. AP Physics will utilize the full powers of mathematics in the learning and understanding of the basic principles and in the solution of physics problems. AP Physics seeks to be representative of the topics covered in an introductory college course in physics. Preparation for AP Physics Course B exam will be one of the goals of this class.

Applied Chemistry

2 trimesters

Grade Level: 10-12

Course # 2308

Prerequisite: 1) Algebra 1

Course # 2309

2) Biology & teacher signature

Applied Chemistry is a course designed to meet the chemistry graduation requirement for those students not intending on pursuing a science related profession that may require a four-year degree. This course has been developed to focus more on conceptual ideas without requiring in-depth mathematical analysis. In this general education course, students will learn chemical and physical principles by exploring a specific focus area in which chemistry is relevant to societal issues or technological advancements. They will apply the methods of science through experiments and learn to communicate scientific and quantitative information. The course develops scientific thinking and helps students understand important interdisciplinary connections.

Biology

2 trimesters

Grade Level: 9 - 12

Course # 2205

Prerequisite: None

2206

Biology is designed to give students an overall view of some of the many different areas of biological study. The major areas of study will be the cell, homeostasis, respiration, photosynthesis, mitosis, meiosis, genetics, DNA, ecology, and evolution. The student will investigate these areas through reading, lectures, laboratory investigations, model construction, technological research and reports.

Chemistry

2 trimesters

Grade Level: 10 - 12

Course # 2301

Prerequisite: 1) Algebra 1

2302

2) Biology

Chemistry is a college preparatory laboratory science that involves the study and observation of various chemical and physical reactions, with a close look at atomic and molecular structure. This course examines the behavior, structure and composition of matter as it exists in nature. The major topics of study will cover classification of matter, atomic structure, chemical reactions, and properties of gases, nomenclature, acids and bases, electrochemistry as well as other various concepts. The student will develop an understanding of these concepts through reading, lecture, laboratory investigation, and problem solving activities. The student will also develop study skills and habits to benefit him/her throughout the education career. A scientific calculator is needed for this course.

Forensic Science

2 trimesters

Grade Level: 11 - 12

Course # 2403

Prerequisite: Chemistry and/or

2404

Physics

Forensic Science is the application of science to the law. The study of science offers the knowledge and technology needed for the use of evidence in both criminal and civil cases. Problem solving will be the focus for this science course. Students will be expected to work in teams, theorize, design experiments, research forensic methodologies analyze and synthesize information, and make conclusions based on evidence.

Greenhouse Management

3 trimesters - ?????

Grade Level: 9 - 12

Course # 2607

Prerequisite: None

Course # 2608

Course #2609

Greenhouse Management is a course designed for students with strong interest in understanding how soil, water, nutrients, light, and temperature impact plant growth. This will be a hands-on course! Students will spend time daily in the greenhouse working on managing the facility and caring for plants.

This course is pending Board of Education approval and student interest.

Integrated Science

2 trimesters

Grade Level: 10-12

Prerequisites: Teacher signature

Course # 2304

Course # 2305

A course primarily aimed at students who do not have a strong interest in science, Integrated Science is designed to cover the essential objectives for the science portion of the MME. The first trimester gives students an overview of the most important concepts in physics, while the second trimester gives a review of the important concepts in earth science, biology, and chemistry. For those students who do not take Physics A and B, successful completion of both trimesters of this course is a graduation requirement.

Natural Resources Management

2 trimesters

Grade Level: 9 - 12

Prerequisites: None

Course # 2603

2604

This course will take a local perspective on the scientific principals and issues related to different ecosystems (prairies, forests, aquatic, etc.). Focus will be given to water quality, soils, and land use. This course will also focus on practical knowledge and identification of local trees, wildflowers, wildlife and aquatic species.

Physics

2 trimesters

Grade Level: 10 - 12

Prerequisite: 1) Geometry
or concurrent enrollment in
Geometry

Course # 2306

2307

The student will study classical mechanics, momentum, rotational motion, energy, electricity and magnetism, nuclear physics, waves, sound, and light. The learning process is focused on principles, critical thinking and problem solving along with experiments.

Plant & Soil Science

2 trimesters

Grade Level: 9 - 12

Prerequisite: None

Course # 2605

2606

This course will include studying the anatomy, physiology, and care of plants, along with an introduction to the structure, weathering, erosion of, and the impact soils have on plant growth. The students will develop an understanding as to the factors that allow people to maintain a balance between feeding a productive world and maintaining our natural environment. Students will also conduct supervised experience projects and be encouraged to join the FFA.