SCIENCE

* Course descriptions that are shaded are not being offered this school year.
* Students in the Class of 2022 and beyond are required to earn 3 credits of science in the following areas:
* Required courses – 2 credits – Students must complete all four courses listed below
  + Biology A – ½ credit
  + Chemistry A – ½ credit
  + Earth Science A – ½ credit
  + Physics A – ½ credit
* Elective courses – 1 credit – Students must complete two of the courses listed below
  + Biology B – ½ credit
  + Chemistry B – ½ credit
  + Earth Science B – ½ credit
  + Physics B – ½ credit
  + Additional Information
  + Students who enroll in and successfully complete 1 credit in a Career and Technical Education (CTE) course can use that credit to fulfill the elective Science credit.
  + Students who enroll in and successfully complete Advanced Placement (AP) Biology, Chemistry, or Physics can use those credits to fulfill the elective Science credit.
* 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

**Agri-Science Leadership** 1 trimester Grade Level: 9 – 12

Course # 2601 Prerequisite: None

This course is intended for those students directly involved in the FFA as an officer, as a committee chairperson, or for students who plan to participate in a leadership or ag skills contest. Basic information regarding parliamentary procedure, organizational management, and prepared public speaking will be taught.

**Biology A** 2 trimesters Grade Level: 9 - 11

Course # 2205 Prerequisite: None

Biology A is designed to give students an overall view of Environmental Biology.  The major areas of study are aligned with the Next Generation Science Standards.  Units of study will include 1) Matter and energy in ecosystems, with specific areas of study on photosynthesis, cellular respiration, matter and energy cycles 2) Interdependent relationships in Ecosystems, with an emphasis on biodiversity and carrying capacity 3) Human Activity and Biodiversity, with an emphasis on reducing human impacts 4) Natural Selection looking at variation of traits, adaptations of populations, speciation and extinction.

**Biology B** 2 trimesters Grade Level: 9 - 11

Course # 2206 Prerequisite: Biology A

Biology B is designed to give students an overall view of Heredity: Inheritance and Variation of Traits.  The major areas of study are aligned with the Next Generation Science Standards.  Units of study will include 1)  DNA Structure and Function investigating protein synthesis, variation in organisms and mutations  2)  Mitosis, Meiosis and Cell Differentiation where students will explore the process and purpose of cell division as well as the process where cells develop into specific somatic cells  3)  Mendelian and Modern Genetics exploring the inheritance of traits and sources of genetic variation and 4) Evolution with an emphasis on evidence of common ancestry and diversity as well as factors that cause evolution.

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**Botany & Greenhouse Management** 3 trimesters Grade Level: 9 - 12

Course # 2606 Prerequisite: None

# 2607

# 2608

This course provides students awesome hands on experiential learning opportunities. Students will learn plant anatomy, physiology, soils and plant nutrition, tree and wildflower identification, maple syrup production, forestry and greenhouse management. Hands on experience in our greenhouse, woodlot and maple syrup production operation will take learning out of the classroom into real life scenarios. This course is appropriate for advanced students and students of all ability levels. Students in this class will have opportunities to improve leadership, personal growth and practical skills through participation in the Mason FFA Chapter.

**Chemistry A** 1 trimester Grade Level: 9 – 11

Course # 2301

This course will explore the basic foundations of the chemical world. This course will focus on experiencing and explaining phenomena, participating in class discussions, laboratory investigations, and problem solving activities. A scientific calculator is needed for this course.

**Chemistry B** 1 trimester Grade Level: 9 – 11

Course # 2302 Prerequisites: Chemistry A

This course is aimed at students who are looking to advance their understanding of chemical concepts. Students planning on pursuing a four-year degree are encouraged to enroll. The course will focus on experiencing and explaining phenomena, participating in class discussions, laboratory investigations, and problem solving activities. A scientific calculator is needed for this course.

**Competitive Robotics** 1 trimester Grade Level: 9-12

Course # 2613 Prerequisites: Intro. to Robotics

This course is designed around the FIRST FRC robotics competition. Students will be working in teams to design, fabricate, construct, program, and operate large robots. Students will be exposed to all areas of the process but will be able to specialize in specific areas for the competitive season. This class will support and participate with the FIRST Robotics team at Mason High School.

**Earth Science A** 1 trimester Grade Level: 9-11

Course # 2101 Prerequisites: none

As an introduction to earth science concepts students will study content on the history of the earth. Students will learn about land forms, plate tectonics, earth cycle systems, natural resources and resource management. Students will work through real-world problems and address issues such as global climate change and human impact on the planet. Emphasis will be placed on student modeling and problem solving.

**Introduction to Robotics** 1 trimester Grade Level: 9-12

Course # 2609 Prerequisites: None

This course will focus on the basics of robotics and technology. Students will work in teams to design, construct, and program robots to complete in assigned tasks. Basic design skills, construction techniques, and programming are helpful but not required.

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**Physics A** 1 trimester Grade Level: 9 - 11

Course # 2306 Prerequisite: Algebra 1

As an introduction to Physics ideas, students in this course will study motion in one dimension, Newton’s laws, work and energy, electric circuits, and waves and sound. Students will have many lab opportunities to apply the ideas they are learning and will be asked to solve real-world problems as well. Use of mathematics is not a primary aim of the course, but mathematical thinking and reasoning is very important, and students will be expected to apply many ideas from Algebra 1.

**Zoology & Veterinary Science** 3 trimesters Grade Level: 9 - 12

Course # 2610 Prerequisite: None

2611

2612

This course provides students awesome hands on experiential learning opportunities. All aspects of animal anatomy, physiology and health will be taught in the classroom and brought to life with experiential learning opportunities. Experiential projects include aquaculture production, incubation of eggs, raising broiler chickens, managing a small flock of sheep and managing two pregnant pigs through the birthing and nursing process. This course is appropriate for advanced students and students of all ability levels. Students in this class will have opportunities to improve leadership, personal growth and practical skills through participation in the Mason FFA Chapter.

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