Revised 4/26/2026

Science Class Descriptions 2026-2027

Anatomy and Physiology with lab
Teacher: Stephanie Magargee
Level: 3, 4, or 5
Credit: 1
Meets: Full year, once weekly (see grid)
Labs will be held approximately once a month on Tuesday,
Prerequisites: Biology, Level 3 or higher (Level 2 with permission)
Text:

- *Exploring Creation with Advanced Biology: The Human Body (2nd edition)*, Shannon and Yunis **– no solution manual required**
- Kaplan *Anatomy Coloring Book, 10th edition* ISBN: 1506295266 (Amazon $22.33).

Additional required materials: A **quality, working** microscope with a minimum of 40x, 100x, 400x magnification. A mechanical stage is very beneficial. This is one that I recommend: https://amscope.com/products/c-m620?variant=41108589379759 Amscope usually has a Labor Day Sale
Homework time expectation: 4-6 hours weekly, varies by student and level (Honors additional)
Teaching format: Lecture, videos, hands-on activities, homework, weekly quizzes, tests, monthly labs.
Description: This class covers 15 of the 16 modules in the text: Biology Review, Histology, Integumentary and Skeletal Systems, Skeletal System Histology and Movement, Muscle Histology and Physiology, Skeletal Muscle System, Nervous System- Central and Peripheral, Endocrine System, Circulatory System, Lymphatic System, Digestive System, Respiratory System, and Urinary/Excretory System.
Lab dissections include: cow's eye, cow's heart, and a fetal pig

Biology with lab
Teacher: Rachael Gill
Levels: 3, 4, or 5
Credit: 1
Meets: Full year, once weekly (see grid)
Required books:

- ***Discovering Design with Biology*** from Berean Builders by Dr. Paul Madtes Jr. and Dr. Jay Wile
- ***Answers and Test Key for Discovering Design with*** *Biology* from Berean Builders by Dr. Paul Madtes Jr. and Dr. Jay Wile
- A large binder with 8 dividers

Additional Materials Needed**:**
All students will also need a microscope. Apologia has the recommended microscope on their website, www.apologia.com. However, many more affordable options are available online through various shops or through used homeschool pages. Having a microscope with a mechanical stage is helpful but not required. Students will also need reliable access to Google Classroom.
Time Expectation**:** Approximately 6.5 hours/week, but varies greatly depending on the student.
Teaching Format**:** Lecture with labs, at home videos, textbook work

Description**:** The core of this class will be utilizing Discovering Design with Biology, by Dr. Paul Madtes Jr. and Dr. Jay Wile and if all the work assigned is done, is considered level 4.

- Level 3 will have reduced quizzes and textbook assignments, along with a modified testing format
- Level 5 will require additional projects and online assignments, as well as 6 hours of additional lab time

This course provides a comprehensive introduction to the study of life, emphasizing both scientific inquiry and a Christian worldview. Students will explore fundamental biological concepts including cell structure and function, genetics, evolution, ecology, and the diversity of living organisms. Through hands-on activities, laboratory investigations, and critical thinking exercises, students will develop a deeper understanding of how living systems function and interact.

From a biblical perspective, this course highlights the complexity, order, and purpose found in creation, encouraging students to see biology as a means of appreciating God's design. Students will be challenged to think critically about scientific theories while evaluating them in light of Scripture and evidence, fostering both academic growth and spiritual development.

Please note: This course is only offered every other year, so please make your school plans accordingly.

Conceptual Chemistry with lab, Level 2

Teacher: Stephanie Magargee
Level: 2
Credit: 1
Meets: Full year, once weekly (see grid) field trip), Labs will be held on Tuesdays approximately once a month. Dates: TBD One will be a field trip which may occur on a day other than Tuesday.
Prerequisite: none
Text: Introduction to Chemistry 3rd edition by Bauer, Birk and Marks
ISBN 978-0-07-340267-3 (There are some copies in the MSA library and used copies are available for less than $10 on AbeBooks.com and Amazon.com)
Optional: *A Guide to the Elements* by Albert Swertka (Used $10 on Amazon)
Homework time expectation: 3 hours weekly
Teaching format: Lectures, discussion, projects, videos
Description: Topics covered include chemistry and measurement, states and make-up of matter, compounds, formulas & names, types of chemical reactions, atomic theory, periodic table, bonding, reactions, acids & bases. This level 2 class has very little math so that those who are not math savvy can still accomplish a high school chemistry credit. Any tests/quizzes will be open book. To take this class as a level 3, see the description below.

Chemistry, Level 3 (To be taken in conjunction with the above Conceptual Chemistry course)

Teacher: Bobbie Brickner
Level: 3
Meets: Full year, weekly (see grid)
Prerequisites: Solid knowledge of Algebra I
Text: *Chemistry*, Greg Curran, ISBN: 978-1-60163-163-3

https://www.amazon.com/Homework-Helpers-Chemistry-Greg-Curran/dp/1601631634/ref=sr_1_1?keywords=chemistry%2C+greg+curran&qid=1579723322&sr=8-1
Additional required materials: Students will need access to a computer and the internet to complete reading or video assignments.
Homework time expectation: 2 hours weekly, varies by student
Teaching format: Lecture, homework, tests
Description: This class *is to be taken in conjunction* with Mrs. Magargee's level 2 chemistry class (Conceptual Chemistry). This will then enable a student to increase from a level 2 chemistry class to a level 3 (College prep) chemistry course. Students should be very comfortable with the algebra I concepts of rearranging equations to solve for an unknown and scientific notation. Students will need to be able to use a standard scientific calculator (model does not matter). A pretest will be given to students during the summer (to be taken in the MSA office) to make sure they are ready for the math or if they need a review before starting this course.

Forensic Science with lab
NOTE: This class has a limit of 12 Students
Teachers: Bobbie Brickner
Level: 3 or 4
Credit: 1
Meets: Full year, once weekly (see grid) with monthly labs on Tuesdays (dates & times TBD)
Prerequisites: Successful completion of chemistry and biology (any level)
Text: *Forensic Science: Fundamentals & Investigations 2012 1st* Edition by Anthony J. Bertino
ISBN-13: 978-0-538-73155-3
Additional required materials: Students will need access to a computer and the internet to complete reading or video assignments.
Homework Expectations: 4 hours weekly, varies by student (Honors additional)
Teaching format: Lecture, homework, labs, tests
Description: Forensic Science is the study and application of science to law. This course is designed to explore the scientific and technological aspects of criminal investigations. This course is rich in exploration and lab investigation. Some examples from the course:

- How do you spot a counterfeit $20 bill?
- How are fingerprints taken and identified?
- How are field drug tests conducted?
- How can burning fibers help identify their content?
- Can the gender of human remains be determined from only a skull?
- What is the difference between high and low velocity blood spatter?

Throughout the course students will assess how scientific methods have evolved in forensic science. The cases are fascinating, the labs are engaging, and the content is a satisfying mix of all the sciences studied up to this point in your school career. Level 4 students will work on selected quarterly projects to further enhance their learning.

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Introduction to Medical Science
Teacher: Crisi Morris
Credit: 1
Meets: Full year, weekly on Mondays (see grid)
Level: 3 or 4
Prerequisites: A previous biology class would be helpful but not required.
Homework Time Expectation: 1-2 hours per week, studying, mastering vital signs and preparing for test.
Teaching Format: Lecture, homework, videos, & hands-on learning activities
Required Textbooks: No text! I will be giving them Sketch Notes and info in class.
Manual Blood Pressure cuff and stethoscope.
This is recommended. **do not spend hundreds on a stethoscope for this class** BP Cuff MUST be manual. No electronic cuffs.
https://www.amazon.com/Dixie-Ems-Pressure-Sprague-Stethoscope/dp/B01MTAHF1C/ref=sr_1_1_sspa?dib=eyJ2IjoiMSJ9.TLm9AiI1msVqbrCi1sWqhZs0DH_Km3VFSsJYfxn--CyUbWBkLbrIuN6VwnCwMRtTnJlZilFVRU7aZvPR60kS7CJIyRy0m31iEv1NMHLICcfewfRwNeEBb50g3qR--jD2JuXpfadgFPmr-WnDnrNSUi2Ay6DcvUtRkadXjF-uQR7-NmG-sP-nvtHTSYztN2tBlHuERxy7-PTtXS2_jJQQTgPWFoDYP4VXI3L31G2mctU.P3jYnpIDIAljPLp4Ngrd8UFdcIJF0Wd6qKhOa7CW6kI&dib_tag=se&keywords=blood+pressure+cuff+and+stethoscope+kit&qid=1709044086&sr=8-1-spons&sp_csd=d2lkZ2V0TmFtZT1zcF9hdGY&psc=1
Description: This is the perfect class for those interested in the medical field (nursing, paramedicine, ultrasound tech, radiology tech, CT Scan tech). This will be heavily focused on nursing and nursing type careers. This will still be pertinent for future doctors but it will follow the nursing care model as the medical care model differs. This is a true, real life, what do you need to know to be successful in the medical field course. It is the perfect complement to the Anatomy & Physiology Class and the topics will be presented so they align with the A & P syllabus. Students will become certified in Heartsaver CPR & AED. We will have 2 trips: Del Tech Terry Campus in Dover to see the paramedicine lab and surgical tech labs and anatomy tables (October) and the Mutter Museum in Philadelphia (April). Respiratory Therapy guest speaker with pig lung lab in the spring will take place at MSA.
These are some of the topics we will be covering:

History, Do No Harm, Therapeutic Communication, Abbreviations, Ethics
Med Terminology, Vital Signs, Infection Prevention, Neumonics, GCS
Meds, PO, IV, PR, Pharmacokinetics
Reading cups, syringes, med labels
Lab values, ABG's, Electrolyte imbalances
Nutrition In and Out of GI Tract
Disorders of the GI System (small and large bowel)
Liver, GI, Pancreatic disorders
Rheumatology & autoimmune disorders (MG, MS, Parkinson, Lupus, etc)
Nephrology & Urologic disorders
Endocrine diseases & Diabetes / Thyroid
Burns

Neurology – medical neuro, strokes, aneurysms
Neuro Trauma, Closed head, traumatic bleeds
Female Health/Male Health
Head to Toe Physical – medical
Mental Health
Spinal Cord Injuries & Nervous System disorders
Geriatric concerns – Special population
Trauma stabilization, First Responders
Hematology & Transfusions Cardiac
Oncology
Immunology
Common cold, viruses Antibiotic stewardship, Levels of Care, Pearls, Sick or Not Sick
Medical Math, conversions, packages, Hand-on activity in class
Skeletal, Splinting, Optimal Positioning
Pulmonary & alternative airways
Maternity /Pediatrics – Special population
Head to toe – Trauma

Physical Science with lab

Teacher: Georgeanna Singley

Level: 2, 3, 4, or 5

Credit: 1

Meets: Full year, once weekly (see grid)
Each class will include lecture and lab.

Text: (for **ALL Levels)**

- *Exploring Creation with Physical Science 2nd edition*, Jay Wile (ISBN: 9781932012774)
- *Solutions and Tests for Exploring Creation with Physical Science 2nd edition*, Jay Wile (ISBN: 9781932012781)

Additionally, **Level 4 and 5 are required to have**

- *The Weather Book,* Michael Oard (ISBN: 9780890512111)
- *The Weather Book Study Guide & Workbook*, Michael Oard (ISBN: 9781893345591)

Homework time expectation: 3-5 hours weekly (outside of class/lab)

Description: Physical Science is the study of the earth, the universe, and the laws of physics. The course focuses on the study of the air, atmosphere, water, hydrosphere, lithosphere, weather, motion, Newton's Laws, electricity, magnetism, sound, light, and astrophysics.

This class will include instruction on the textbook material, labs, and occasional instruction on other science topics. Class time will be used to lecture on and discuss the assigned textbook reading and complete labs included in the textbook.

A syllabus will be provided with clearly laid-out, daily assignments to be done at home. Assignments consist of reading the textbook, answering textbook questions, preparing lab reports, and taking tests.

- **Level 2 students:** Tests are open notes.

- **Level 4 students**: Complete *The Weather Book* and *The Weather Book Study Guide & Workbook.*
- **Level 5 students:** Required to give a 2–5-minute oral presentation, complete one extra Module in the textbook **AND** complete *The Weather Book* and *The Weather Book Study Guide & Workbook.*

Physics Year 1 with lab

Teacher: Kathy Martin

Level: 3, 4, or 5

Credit: 1

Meets: Full year, once weekly for two class periods in a row (see grid). **Two additional classes will also be held outside of the regular school year:** one on **Dec. 14** (the first Monday of Christmas vacation) and one **TBD** (either **May 7** which is the Friday immediately after the last day of school, **or May 10** which is the Monday immediately following the last day of school). These extra classes will be **3¼ hours long** each.

Prerequisites: Algebra I, Algebra II, Geometry

Text: *Exploring Creation with Physics 2nd edition (textbook AND solution manual)*, Jay Wile.
Multimedia CD and test booklet **ARE NOT** required
For used copies: Check the school library if a diploma student, or contact Mrs. Martin via Mt. Sophia email (ask for the email to be forwarded to her) or purchase online

Additional required materials:

- the TI-30XIIS scientific calculator (costs approx. $15). Cell phones are not allowed to be used in place of calculators. Use of alternate calculators in class is strongly discouraged. If a different calculator is used, the student will be on his or her own to figure out how to use it. An alternate calculator MUST use the "press function then enter numbers format" (so the TI-30Xa is NOT an acceptable substitute).
- Ruler with metric units, graph paper (4 or 5 squares per inch with lightly colored gridlines), 16 sealable business-sized envelopes to keep at home for take-home tests, protractor, drawing compass, two (2) colored pens or pencils, stapler, pencils, binder
- access to a home computer and WIFI

Homework time expectation: 4-7 hours per week, depending on student

Teaching format: Lecture, homework, tests, discussion, demonstrations, hands-on experiences, and lab

Description: Why don't cars always make it around a curve? Do airbags really reduce injuries? Find out the answers to these and other real-life physical problems by learning physics. Topics include motion, Newton's Laws, energy, momentum, periodic motion, waves, sound, light, optics, electricity and magnetism. This course combines a mathematical approach with hands-on experiences and investigative labs. Applications to "real life" are highlighted. A physics course can make your application to colleges for majors such as engineering and science more attractive to colleges and scholarship committees. Students who anticipate majoring in science or

engineering in college should take this course. Students typically take this course in their junior or senior year. The course is algebra-based. It will not use calculus.
NOTE: We will meet for 2 extra classes in addition to the usual Mount Sophia schedule. One extra class is typically over winter break. The second extra class is typically after the last day of school (on the Friday or Monday immediately following the last day of school). Extra classes will involve homework. The extra class at the end of the year will also include a test. If vacation plans interfere with the extra classes, the work can be made up. Also, if college visits interfere with any class, the work can be made up.

Science Exploration
Teacher: Kinsey Towle
Level: 3
Credit: 1
Meets: Full year, 1 hour on Monday mornings (see grid). Students can register by the quarter.
Prerequisites: None. Quarter 3 is only appropriate for upper high school students due to sensitive topics of conversation.
Text: No textbook required. I will provide a written syllabus for each quarter.
Quarter 1: Nutrition and Food Science
Quarter 2: Astronomy
Quarter 3: Genetics and Bioethics
Quarter 4: Horticulture Science
Homework time expectation: 2-3 hours weekly
Teaching format: lecture, discussion, hands-on activities, group activities, homework, tests/assessments, field trips
Description: This full year science class will explore a different science topic each quarter. Students can register and attend for individual quarters. Topics include: Nutrition/Food Science, Astronomy, Genetics and Bioethics, and Horticulture Science. These four areas are favorites of mine, and I look forward to sharing my passion for God's creation with students. Let's dive in together! Our weekly class will include lecture, hands-on activities, group activities, homework both in written and creative form, and tests/assessments. I am a very hands-on teacher, so class time will be interactive. I will expect and encourage student participation as we explore these four different science topics. Projects will include practical applications. For food science, we will be developing and testing recipes. During Horticulture Science, we will design a garden or flower bed. My hope is that students will see how science will apply in many areas of their adult lives. We will also have two additional field trips. Students will be responsible for transportation for one evening trip in the late fall to a local observatory and a spring trip to a garden. Dates/times for the field trips will be available as soon as possible, but I will aim to have them on Tuesdays.