

Gray Matter 2019-2020 Course Catalog

Science

Anatomy & Physiology

Teacher: Achini Mahawanniarachchi

Grades: 9, 10, 11, 12

Class Schedule: Tuesday/Thursday

Class Time: 3:00 – 4:30 pm

Duration: 3 hours per week, 32 week

Description: This is an advanced biology course for students interested in human biology. Those students interested in health professions are introduced to the concepts which will provide them a foundation for further studies. The students will perform experiments, organ and other specimen dissections, and use a high-power microscope.

Dissections include, but are not limited to: brain (sheep), eye (sheep), kidney (pig), spinal cord (cow), and uterus (pig). After building upon the basics of cells and tissues, all of the body systems will be covered: integumentary, skeletal, muscular, nervous, endocrine, circulatory, lymphatic, digestive, respiratory, urinary, and reproductive systems.

Prerequisites: Biology

Homework: Students can expect to spend 2-3 hours per week studying and note taking. There are 2 exams (midterm and final), regular quizzes, and occasional homework.

Class Materials: Standard notebook paper (spiral or loose leaf, student's preference), binder, and pens

Textbook: TBD (all updates will be found at <http://www.graymatterdfw.com/enroll-now/>)

Payment Options:

1. Full tuition of \$1372.50 is due at time of registration.
2. Two (2) installments.
3. Four (4) installments.
4. Nine (9) installments of \$152.50. The first monthly tuition payment is due at time of registration. Subsequent monthly payments of \$152.50 will begin the month following the month you registered and will continue until all additional eight (8) payments are collected.

Biology [Honors]

Teacher: Achini Mahawanniarachchi

Grades: 8, 9, 10, 11, 12

Class Schedule: Tuesday/Thursday

Class Time: 1:00 – 2:30 pm

Duration: 3 hours per week, 32 week

Description: This is an honors Biology class for high school students or advanced middle school students. This high school curriculum and can be counted as a high school science class on your transcript.

This is a lab-based class with inquiry-based labs. As usual, we spend about half our time covering concepts and the other half in hands-on labs each week. Topics include cell chemistry, cell structure and function, heredity and genetics, classification, the six kingdoms (dissection), human anatomy, ecology, and evolution. (Your child can skip the dissections without penalty, if necessary.)

Prerequisites: None

Homework: Students can expect to spend 1-3 hours per week studying and note taking. There are 2 exams - midterm and final, regular quizzes, and occasional homework.

Class Materials: Standard notebook paper (spiral or loose leaf, student's preference), binder, and pens

Textbook: <https://www.ck12.org/book/CK-12-Biology-Advanced-Concepts/> (Available for free online)

Payment Options:

1. Full tuition of \$1372.50 is due at time of registration.
 2. Two (2) installments.
 3. Four (4) installments.
 4. Nine (9) installments of \$152.50. The first monthly tuition payment is due at time of registration. Subsequent monthly payments of \$152.50 will begin the month following the month you registered and will continue until all additional eight (8) payments are collected.
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Chemistry [Honors]

Teacher: Katy Gordon

Grades: 9, 10, 11, 12

Class Schedule: Tuesday/Thursday

Class Time: 9:30 – 11:00 am

Duration: 3 hours per week, 32 wks

Description: This is a pre-AP/Honors Chemistry class designed to prepare your student for college-level coursework. Completion of this course fulfills the science credit required for high school.

This is a lab-based class with inquiry-based labs. About half our time will be used to understand concepts and the other half in hands-on labs to demonstrate those concepts each week. Topics include titrating acids, purifying water, testing to identify the anions and cations in fertilizers, testing the percentages of protein, vitamin C, iron, fats, carbohydrates, and water in foods, preparing and testing a carbonate buffer, testing the activity of enzymes at different pH levels, testing air samples for CO₂, building a cloud chamber and observing the vapor trails from a radioactive particle as well as the effect of a magnetic field on the particle, making esters and so much more!

Prerequisites: Algebra I preferred, but can be taken concurrently

Homework: Students can expect to spend 1-3 hours per week studying and note taking. There are 2 exams - midterm and final, regular quizzes, and occasional homework.

Class Materials: Lab manual provided as copies.

Standard notebook paper (spiral or loose leaf, student's preference), binder, pens, and scientific calculator

Textbook: *Glencoe Chemistry: Matter And Change*; Student Edition [1st edition]; by Nicholas Hainen, Cheryl Wistrom, Laurel Dingrando, and Kathleen V. Gregg; ©2001; ISBN-13: **978-0-028-28378-4**; Hardback, Published by Glencoe/McGraw-Hill; 976 pages. (all updates will be found at <http://www.graymatterdfw.com/enroll-now/>)

Payment Options:

1. Full tuition of \$1372.50 is due at time of registration.
 2. Two (2) installments.
 3. Four (4) installments.
 4. Nine (9) installments of \$152.50. The first monthly tuition payment is due at time of registration. Subsequent monthly payments of \$152.50 will begin the month following the month you registered and will continue until all additional eight (8) payments are collected.
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Earth Science

Teacher: Ian Seamans

Grades: 5, 6, 7, 8

Class Schedule: Wednesday Only

Class Time: 10:45 – 12:15 pm

Duration: 1.5 hours per week, 32 wks

Description: This class covers geology, meteorology, oceanography, and astronomy. Earth Science integrates biology, chemistry, and physics in a way that makes their application real and meaningful to the student. An understanding of the Earth and the forces that act upon it also provide a foundation of understanding for high school science classes. Almost every class will include at least one lab experiment. We will also regularly view short videos related to the week's subject, and have in-class discussions of topics.

Prerequisites: None

Homework: Students can expect to spend 1-2 hours weekly reading the textbook, completing lab notes, watching videos, and completing take-home quizzes.

Textbook: CK-12 Earth Science for Middle School (Available for free online. Will be distributed prior to first class)

Class Materials: Laptop, tablet, or smartphone
Home internet access
Three-ring binder
Writing utensils.
Laptops can be supplied on request.
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Payment Options:

1. Full tuition of \$736.00 is due at time of registration.
 2. Two (2) installments.
 3. Four (4) installments.
 4. Nine (9) installments of \$81.78. The first monthly tuition payment is due at time of registration. Subsequent monthly payments of \$81.78 will begin the month following the month you registered and will continue until all additional eight (8) payments are collected.
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Life Science

Teacher: Ian Seamans

Grades: 5, 6, 7, 8

Class Schedule: Monday Only

Class Time: 10:45 – 12:15 pm

Duration: 1.5 hours per week, 32 wks

Description: This class will cover foundational information about living organisms, ecology, the human body and evolution. We use hands-on labs to explore cells and cell activity, DNA, classification of organisms, the human body, radioactive dating, fossils, and evolution among others. An important aspect of this class is learning the scientific method and creating and documenting experiments.

Prerequisites: None

Homework: Students can expect to spend 1-2 hours weekly reading the textbook, completing lab notes, watching videos, and completing take-home quizzes.

Textbook: CK-12 Life Science for Middle School (Available for free online.)

Class Materials: Laptop, tablet, or smartphone
Home internet access
Three-ring binder
Writing utensils.
Laptops can be supplied on request.

Payment Options:

1. Full tuition of \$736.00 is due at time of registration.
 2. Two (2) installments.
 3. Four (4) installments.
 4. Nine (9) installments of \$81.78. The first monthly tuition payment is due at time of registration. Subsequent monthly payments of \$81.78 will begin the month following the month you registered and will continue until all additional eight (8) payments are collected.
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Physics [Honors]

Teacher: Katy Gordon

Grades: 9, 10, 11, 12

Class Schedule: Tuesday/Thursday

Class Time: 2:30 – 3:45 pm

Duration: 2.5 hours per week, 32 weeks

Description: Completion of this course fulfills a science credit required for high school.

This algebra-based Honors Physics course will take you from kinematics through thermodynamics, vibrations, optics, quantum mechanics, and astrophysics. The course structure builds and enhances physics topics and skills using innovative labs, numerous group discussions and activities, plus problem solving using applied mathematics. Honors Physics incorporates additional mathematics and theoretical concepts beyond the middle school Integrated Physics and Chemistry class.

Prerequisites: Algebra I and Geometry. Algebra II can be taken concurrently. Basic trigonometry helps but is not required.

Homework: Students can expect to spend 2-3 hours per week on chapter readings and regular homework, as well as preparing for exams (2 per semester).

Class Materials: Scientific Calculator
Standard notebook paper (spiral or loose leaf, student's preference), binder, pens, and scientific calculator

Textbook: *Holt Physics: Pupil Edition 1st Edition* by Serway and Faughn ©2002, ISBN-13: **978-0-030-56544-1**, HOLT, RINEHART AND WINSTON Hardcover

Payment Options:

1. Full tuition of \$1157.00 is due at time of registration.
2. Two (2) installments.
3. Four (4) installments.
4. Nine (9) installments of \$128.56. The first monthly tuition payment is due at time of registration. Subsequent monthly payments of \$128.56 will begin the month following the month you registered and will continue until all additional eight (8) payments are collected.