

Gray Matter 2019-2020 Course Catalog

THURSDAY ONLY

Computer Programming

Teacher: Collin Eye

Grades: 6, 7, 8, 9, 10, 11, 12

Class Schedule: Thursdays Only

Class Time: 2:15 – 3:30 pm

Duration: 1.25 hours per week, 32 wks

Description:

Have you ever wondered how a computer works? We use computers every day, but for many they remain a black box, a magical device which can display images and video, play music and games, hold all our data and send it out over the Internet. If you learned how the magic behind this machine worked you could do anything imaginable! Fortunately, computers are not actually mysterious, in fact, they are quite simple; all they do is a bit of math and logic, which anyone can learn.

Our class focuses on learning how the parts of a computer work. Some of these parts you have heard about, Central Processing Unit (CPU), Random Access Memory (RAM), Storage (HardDrive); however, others may be totally new: register, cache, arithmetical-logic-unit, memory-management-unit. You learn how to manipulate these parts to do what you want them to by programming: the art of transforming data. We cover everything from the lowest level of how electricity flows thru the computer, to the highest level where we can speak to the computer in human-designed programming languages.

The first semester is focused on becoming familiar with a computer, and how we interact with it to write and run programs. The second semester moves on to building more advanced programs by interfacing with the operating system and drawing 2D graphics to the screen.

You will learn about:

- The C programming language
- The logic implemented in circuits and how we use it to move and transform data.
- Data structures, how we organize and think about data in the computer's memory.
- How to think about problems mathematically, and represent processes in an algorithmic way.

Some example projects:

- Simple games such as tic-tac-toe, rock-paper-scissors, connect4
- Random number generators
- Text adventures
- Sentence, image, and music generators
- Conway's Game of Life
- 2D video games!

Students will have access to video lectures which cover the topics. Class time will be spent asking questions, experimenting with computers, discussing ideas with classmates, and showing off projects. There will be weekly assignments which students are expected to be to complete before class.

Prerequisites: None

Homework: Students can expect to spend 1-3 hours per week.

Class Materials: Every student is expected to have a dedicated computer on which they can program. I recommend the Raspberry Pi 3, as they're much cheaper than other computers, and are easy to experiment with. In addition to the computer they'll also need a monitor, keyboard, and mouse.

Payment Options:

1. Full tuition of \$738.00 is due at time of registration.
2. Two (2) installments.
3. Four (4) installments.
4. Nine (9) monthly payments of \$82. The first monthly tuition payment is due at time of registration. Subsequent monthly payments of \$82 will begin the month following the month you registered and will continue until all additional eight (8) payments are collected.

Teacher: Ian Seamans

Grades: 9, 10, 11, 12

Class Schedule: Thursday Only

Class Time: 1:00 – 2:15 pm

Duration: 1.5 hours per week, 32 wks

Description: This class prepares students with both the theoretical underpinnings of economics and government as well as the practical education needed for them to be successful and active members of their community. Government will be covered at all levels, from city, to state, to international. Micro and macroeconomics will be covered, as well as life skills including financial and information literacy.

We will use in-class discussions and debates, work-sheets, presentations, and projects in class, and textbook reading out of class in order to engage students and avoid long lectures.

Prerequisites: None

Homework: Students can expect to spend 1-2 hour per week.

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

Textbook: The readings will consist of articles in scientific journals, book excerpts, or online resources. Most readings will be available online, while others can be downloaded from Canvas.

Payment Options:

1. Full tuition of \$661.50 due at time of registration.
2. Two (2) installments.
3. Four (4) installments.
4. Nine (9) monthly payments of \$73.50. The first monthly tuition payment is due at time of registration. Subsequent monthly payments of \$73.50 will begin the month following the month you registered and will continue until all additional eight (8) payments are collected.

Philosophy & Literature

Teacher: Dr. Jonathan Hochberg

Grades: 6, 7, 8, 9, 10, 11, 12

Class Schedule: Thursday Only

Class Time: 11:00 – 12:15 pm

Duration: 1.25 hours per week, 32 wks

Description: This course introduces students to major problems at the intersection of philosophy and literature. It addresses key questions about the value of literature, philosophical puzzles about the nature of literary language, and the surprising uses of literary style in philosophical texts.

An introduction to the some of the most intriguing and illuminating points of intersection between philosophy and literature, with specific attention to the function(s) of literature and to the function(s) of literary form in certain philosophical writings. We will raise the following questions:

Why would a writer whose aims are philosophical produce anything other than a treatise?

Why would a writer whose aims are literary make use of philosophical ideas, motifs, and vocabulary? What, in general, can literary forms achieve that non-literary forms cannot? What is (or can be, or should be) the effect of imaginative literature? Should we think of it as conveying (special kinds of) truth; transmitting idiosyncratic visions; inventing glorious lies; or simply setting up useful make-believe scenarios? Is it a storehouse of philosophical examples, of phenomenological data? Or is it instead a formal model for ways of living one's life? And can literature improve its readers morally? Or does its function precisely depend on a refusal to offer clear positions and adopt definitive stances?

We will explore three general kinds of connection between philosophy and literature:

- philosophy on literature: philosophical approaches to the understanding of literary texts (issues of truth, personal growth, self-discovery, and life lessons);
- philosophy in literature: literary texts that explicitly invoke philosophical problems or approaches, particularly those belonging to the ethical domain and human wisdom of the ages.

Completion of this course fulfills an Elective or Humanities credit required for high school..

Prerequisites: None

Homework: Students can expect to spend 1-3 hours per week.

Class Materials: 3-ring binder devoted to this class only
Notebook paper
Pens/pencils
Colored pencils
Internet access at home for homework assignments

Textbooks: Dan Brown, The Da Vinci Code
Hermann Hesse, Siddhartha
Yann Martel, Life of Pi

Payment Options:

1. Full tuition of \$750.00 is due at time of registration.
2. Two (2) installments.
3. Four (4) installments.
4. Nine (9) monthly payments of \$83.33. The first monthly tuition payment is due at time of registration. Subsequent monthly payments of \$83.33 will begin the month following the month you registered and will continue until all additional eight (8) payments are collected.

Speech and Debate

Teacher: Ian Seamans

Grades: 9,10,11,12

Class Schedule: Thursdays Only

Class Time: 2:30 – 4:30 pm

Duration: 2 hours per week, 32 weeks

Description: This class fulfills the speech credit required for high school. Equally important, it prepares students for those many situations in careers, community service, college courses, and even high school classes where they will be expected to speak in front of people. This class will focus equally on debate and public speaking. In-class debates will be held, and we will learn both the informal and formal rules of debate. We will also learn some of the principles of effective public speaking, analyze some great speeches, gain some tools to deal with anxiety, and practice impromptu speaking.

Prerequisites: None

Homework: Students can expect to spend 1-2 hour per week.

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

No textbook required

Payment Options:

1. Full tuition of \$900.00 is due at time of registration.
2. Two (2) installments.
3. Four (4) installments.
4. Nine (9) monthly payments of \$100. The first monthly tuition payment is due at time of registration. Subsequent monthly payments of \$100 will begin the month following the month you registered and will continue until all additional eight (8) payments are collected.