

Gray Matter 2019-2020 Course Catalog

Electives

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.

Game Studies/Ludology

Teacher: Collin Eye

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

Class Schedule: Tuesday Only

Class Time: 2:15 – 3:30 pm

Duration: 1.25 hour per week, 32 wks

Description: **This class can serve as a high school elective, or a humanities credit.**

Games such as Chess and Go have been with us for ages, but computers have given games a new expressive ability to explore ideas and tell stories only possible in an interactive medium. It's important to think critically about any media we consume, and while we have a rich history of doing this with literature, art, music, and film, far too little thought is put into how and what video games communicate.

We play and discuss several genres of games, each type offering unique perspectives:
Games that

- * improve problem solving and critical thinking,
- * present thought experiments about how time and space behave
- * foster a sense of empathy by taking on other roles in life
- * allow experimenting with the consequences of one's actions
- * require planning and strategic thinking
- * explore themes of choice and fate

Students will do "close readings" of games and analyze how the game communicates ideas thru the mechanics of play. We will play and discuss games in class, and there will be weekly assignments of videos, lectures, or writings on games. Students will also write several analysis papers on these games.

Prerequisites: None

Homework: 1-3 hours since they'll have some writing/reading/watching assignments.

Class Materials: None

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.

Passionate Entrepreneurship & Global Business Foundations

Teacher: Dr. Jonathan Hochberg

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

Class Schedule: Tuesdays Only

Class Time: 1:00 – 2:15 pm

Duration: 1.25 hours per week, 32 wks

Description: In our school systems we are not doing enough to inspire, model and teach creativity and innovation to our children. **Youth who learn about passionate entrepreneurship and the 3P's (Profit, People & Planet) will have greater opportunities and success in the new global economy.** Many of today's traditional jobs will continue to be lost to the emerging giants of China and India. So, let's get started helping our teens to learn these skills by doing! I find most things in life are learned experientially.

Student will learn with a step-by-step approach of how to become a successful entrepreneur by creating their own micro-business and including:

- How to dream/brainstorm a new business from their passions
- How to write a mission and vision statement for an eco-friendly and socially conscious enterprise
- How to learn and model from other successful entrepreneurs
- How to find and access adult mentors
- How to target markets for their products/services
- How to make a perfect pitch video.

There will also be successful entrepreneurs as guest lecturers.

In today's complex global and uncertain environment, **innovation** is important to achieving business success. In this course, students will examine how to be an **effective creative leader** who can readily **apply imagination** to resolve complex problems. Additionally, students will explore methods to **establish a team environment conducive to creative thinking**. Students will gain a set of proven methods, skills, and strategies that enable

innovative breakthroughs to occur in a much more deliberate and predictable manner. Topics include: an overview of the concepts of cross-cultural awareness, outsourcing, trade and investing overseas, global competition, global competition, emerging markets, and creative thinking styles. The second semester will focus on learning about the **complexities of globalization and global business and its impact on consumers, businesses and nations.**

Completion of this course fulfills an elective 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: Screw It, Let's Do It: Lessons in Life (Quick Reads) by Sir Richard Branson
Steve Jobs by Walter Isaacson
Life Safari by John P. Strelecky

Payment Options:

1. Full tuition of \$843.00 is due at time of registration.
2. Two (2) installments.
3. Four (4) installments.
4. Nine (9) monthly payments of \$93.67. The first monthly tuition payment is due at time of registration. Subsequent monthly payments of \$93.67 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:

5. Full tuition of \$750.00 is due at time of registration.
6. Two (2) installments.
7. Four (4) installments.
8. 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.