



Course Catalog

2018-2019

Semester 2 Courses

MATHEMATICS

Financial Algebra

Clark Ragsdale

Frequently, students finish their college career without the most basic financial skills necessary to function in our 21st century world. These can run the gamut from personal questions (buying a house, determining the best job utilizing long term financial return analysis, how do I plan for retirement) to business scenarios (how can I maximize revenue from a new product line, what are the best terms when looking for startup capital for a new venture). In this course, students will utilize and apply mathematical skills to solve these real-world issues that they will confront as adults.

Principles of Engineering

Clark Ragsdale

Everyone sees marvels of the modern world in their everyday lives: a beautiful building, the space shuttle, or a highway overpass. But how many of us who aren't engineers think, "Could I build that"? In fact, you can. You may not have finished college with an engineering degree, but you can use the tools in a shop and readily available materials to build working models that incorporate all the engineering principles of the real thing. Students in the course will move from theory (involving the underlying mathematical principles) to the construction of working models that functionally work like the real thing.

Class work, homework, but mostly completed construction projects will be the basis for study in this course.

COMPUTER SCIENCE

Advanced Computer Science Projects

Dr. Kevin Oliveau

This class is intended for students who have completed a coding class but now want to move on to more advanced projects. At this level, coders encounter higher level challenges: how to break down complex problems into smaller tasks; how to manage multiple functions and classes; how to document your code and make it readable; coding styles which reduce the chances of introducing bugs; documenting your code both for yourself and for others; working with other coders using defined interfaces; hiding complexity and detail from other coders/users.

Physical Computing: Individual Projects Advanced Topics

David Romero

This is the capstone to the first semester of Physical Computing. Students will outline a project for themselves, set deadlines and create something of

their own. Along the way students will have to pick up new skills and learn more about programming. Students are welcome to use our parts and Arduino microcontrollers. Students are given the freedom to use different platforms and components at their own cost.

SOCIAL SCIENCE

America's Longest War: Afghanistan

Dr. Kevin Oliveau

We will be covering U.S. involvement in the wars of Afghanistan from the Soviet invasion to the present. We will read two books by Steve Coll: *Ghost Wars: The Secret History of the CIA, Afghanistan, and Bin Laden, from the Soviet Invasion to September 10, 2001* and *Directorate S: The C.I.A. and America's Secret Wars in Afghanistan and Pakistan*. Steve Coll's books are considered to be the best open source text on these operations within the U.S. Intelligence Community.

Age of the American Revolutions: 1750-1804

Dr. Kevin Oliveau and Jim Percoco

In this course, students will examine American history from 1750-1804, focusing on the War for Independence, its background causes and effects as well as looking at the Constitutional Convention and the Early American Republic. This will be more than a story of military battles won and lost, but a study of patterns of history that shifted during the age and how the American Revolution was of global importance, launching a modern republic, based on the concept of a meritocracy, abandoning European structures for something new and different. As part of the course, students will participate in the American Battlefield Trust's annual day of service, Park Day at Yorktown Battlefield.

Thomas Merton and Modern Spiritual Masters

Jim Percoco

This course is about one of the most important American voices of the 20th Century, Thomas Merton. It will be an examination of Merton's beliefs about war, violence, civil rights and nuclear armament as well as his serious explorations of non-Western religious traditions. Students will read his biography, *A Life of Wisdom* by James Forest, Merton's bestselling autobiography, *The Seven Storey Mountain*, and *Thomas Merton's Essential Writings*. After completing the study of Merton, students will research other spiritual masters of the 20th Century, including, but not limited to Abraham Joshua Heschel, John Muir, Anthony DeMello, James Martin, Joan Chittister, Thich Nhat Hanh, Sandu Sundar Singh, Edith Stein, Henri Nouwen, Albert Schweitzer, Swami Abhishiktananda, and Pierre Teilhard De Chardin, among others.

LANGUAGE ARTS

Studies in the Novel: Ghost Stories

Dr. Dan Clinton

Readings will include *The Haunting of Hill House* by Shirley Jackson, *The Turn of the Screw* by Henry James, *Dracula* by Bram Stoker, "The Rime of the Ancient Mariner" by S.T. Coleridge, "Tam O'Shanter" by Robert Burns, and other texts that grapple with the conflict between disillusioned modernity and remnants of local superstition. To be clear, this is not a course about the occult; it is a course about the figurative ghosts created by our erasure or repression of the past. Spoilers: Bruce Willis was dead the whole time.

20th Century Pop Culture: Radio, Radio

Dr. Dan Clinton

This course will cover classic radio drama, including the infamous *War of the Worlds* broadcast by Orson Welles, radio plays by poet Archibald MacLeish, wartime broadcasts by Norman Corwin, and horror stories by Arch Oboler (who would go on to direct *Bwana Devil*, the first color film in 3D). We will conclude with a unit on the art of podcasts, the modern inheritors of radio drama.

OTHER

The Artist's Way (HS)

Danielle Ferrin

In this course, we will be delving into to the habits of an artist and the best practices for sharing out your unique creativity into the world. With choice projects, we will continue to not only develop your craft & thinking to examine influences and persevere at art tasks, but also engage with sharing what we have made through creating a personal website, exhibiting at local public spaces, entering competitions and curating our personal narratives. This class will include field trips and guest speakers – working artists from all walks of creating.

Eighth Grade Research and Collaboration: Eighth Grade Project

Jim Percoco and Maureen McCrae

This project is the capstone to our middle school program, transitioning students to the depth, independence, and outward-facing characteristics of our high school courses. Students work for one semester, collaborating on a single extended project that involves working with individuals outside of school to accomplish a specific goal. At the conclusion of the course, they formally present the class project and its implications to the school community.

Tenth Grade Research Seminar: Investigation & Outreach

Dr. Dan Clinton

The tenth-grade milestone builds on the skills acquired in eighth grade, requiring greater independence and self-direction and offering direct instruction in more sophisticated research methodologies. Students work for one semester on an extended independent project that involves working with individuals outside of school to accomplish a specific goal. The class meets together regularly for instruction and feedback, but students independently design and execute their research project. At the conclusion of the course, they formally present their individual findings to the school community.

Eleventh Grade Individual Study (Optional): Personal Goals and Deep Study

Various

In eleventh grade, students have the opportunity to earn one to two credits for individual deep academic study. To earn credit, they must prepare and successfully defend an original proposal to a panel of faculty and then fulfill the conditions of that proposal. Based on the college model, this course requires the student to design the rationale, reading list, timetable, and final product, which will become part of their high school portfolio. Regular one-on-one meetings with a faculty mentor support student learning and accountability. Students are encouraged to select topics that could contribute to their senior research and practicum.

Senior Research and Practicum (Optional): Professional Readiness and Leadership

Various

This optional, semester-long senior practicum is an opportunity to explore a subject deeply within real-world contexts. The goal is to learn how professionals practice a discipline the student might pursue in college. Faculty mentors provide guidance on the project and identify opportunities for relevant experiences outside of school. Students may work in a co-working space in Washington, D.C., for access to a larger pool of research and internship prospects. Before graduation, students present their findings to the school community and are required to have at least one outside expert on their review panel.

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