FALL 2018 SELECTED TOPIC COURSE DESCRIPTIONS

Biology 389: Medical Genomics and Bioinformatics

In this course we will explore the concepts and skills of genome data analysis through the analysis of data obtained from two landmark studies: 1) The genome sequence analysis of 99 sequenced Ebola strains from the 2014 Ebola virus outbreak in Africa (Gire etal 2014) and 2) A study suggesting the mechanism by which the Zika virus infects human cortical neurons, leading to microcephaly (Tang et al., 2016).

This is a hands-on, project based course in which students will learn the latest bioinformatics (computer-based) techniques for genome sequence and gene expression analyses.

Gire et al. (2014) Genomic surveillance elucidates Ebola virus origin and transmission during the 2014 outbreak. Science 28 Aug 2014: 1259657 DOI: 10.1126/science.1259657

Tang H1, Hammack C2, Ogden SC2, Wen Z3, Qian X4, Li Y5, Yao B5, Shin J6, Zhang F5, Lee EM2, Christian KM3, Didier RA7, Jin P5, Song H8, Ming GL9 (2016) .Zika Virus Infects Human Cortical Neural Progenitors and Attenuates Their Growth. Cell Stem Cell. 2016 May 5;18(5):587-90. doi: 10.1016/j.stem.2016.02.016. Epub 2016 Mar 4.

1.0 Units

Meets TBD

This course counts as a Lab course for the Biology major.

Pre-requisite: Biology 300 or Permission of instructor.

CHEM 287 (.25 unit)

CHEM 288 (.50 unit)

Intro to Chemistry Research

Intro. to Research is an introduction to laboratory-based scholarship in the chemical sciences. Students will participate in a weekly seminar, where they will learn how to navigate and read chemical literature, how to prepare and deliver research-based presentations, and how to prepare posters to present research results. In addition to this seminar, students will also work in research laboratories.

CHEM 289: Adv. Bioinformatics: Proteomics

This course will explore research and methods used to study protein structure, expression and systems biology. We will examine these topics by looking at model systems that are medically relevant, including Alzheimer's disease, cancer, and diabetes. This will include using databases for protein structure, gene expression, and systems biology. Students will also learn to use basic open source software utilized in these fields. Students should have experience in chemistry or biology, such as BIO 210 and 300, CHEM 211 or CHEM 337, or intro to bioinformatics. Students that are uncertain about their level of preparation may also register with instructor's permission.

COMM 389: POLITICAL COMMUNICATION

The understanding of what constitutes politics and political life typically occurs through two means – the study of political institutions and elites by political scientists, or the examination of these actors by and through news media. This course examines the interaction of media, politics, and public opinion, thus providing a survey of the field of political communication. This course will focus primarily on the American context, though international contexts will serve as points of comparison where applicable. Emphasis will be given to the role of political communication in democratic society; the audiences for political communication; what it means to be a citizen in the United States today; the effects of media on citizens' engagement with politics; factors that shape the construction of news; and the interaction of politics and popular culture.

E&M 389 Behavioral Finance (MW 2:15-4:05 PM)

Instructor: George Katsanos - Former investment banker, futures and options trader, and active risk manager

Empirical research has identified serious flaws in the concept of rational economic decision making and efficient markets. Since 1979, when Amos Tversky and Daniel Kahneman published their ground-breaking article in *Econometrica* on *Prospect Theory,* traditional economics has been enriched with/by insights from behavioral psychology to explain why people often make irrational financial decisions. Behavioral Finance, as the field is called, addresses cognitive biases and problems of self-control that often lead individuals to act against their own best interests. Students will be encouraged to reflect upon their own mindsets and to determine the perils that investors face in making financial decisions. The main objective of the course is to provide students with the cognitive tools to enhance their own decision making by de-biasing some situations they face. Among the topics we will address in this course are:

- Brief review of conventional financial theories (e.g., discounted present value, efficient market hypothesis)
- Prospect theory, framing, and mental accounting
- Cognitive issues in artificial intelligence
- Rules of thumb, biases, overconfidence
- Emotions and investment decisions
- Explaining stock market puzzles
- Behavioral corporate finance
- Limits to arbitrage and long/short trading

Students will be evaluated based on tests, short papers, and oral presentations.

Who should take this course:

- Students interested in learning about decision-making, active risk and investment management.
- This course counts as an elective for the Finance major and minor and the E&M major.
- It may also be of interest to Psychology majors interested in finance.

Prerequisites:

E&M 101 Principles of Microeconomics *AND* E&M 102 The Economy and Financial Markets.
PSYC 101 Introduction to Psychology is helpful but not required.

Note: It is unclear when this course will be offered again. Interested students who have completed the prerequisites should take it now.

HIST 289 Holocaust: History & Memory

MW 2:15-4:05. Mode: gender

The course will study one of the most important events of the twentieth-century: the Holocaust. We will discuss the development of modern antisemitism, the rise of fascism and Hitler, the evolution of Nazi Jewish policy, the mechanics of the Final Solution, the experience and response of the victims, and the post-war attempt to deal with these unparalleled crimes through traditional judicial procedures.

KIN 389 MusculoSkel Assessment

This course is designed to understand and perform orthopedic physical assessment. Hands on skills will include palpation, goniometry, manual muscle testing, special tests and neurological evaluation techniques. Students will learn to how to take a patient history and determine signs and symptoms that are associated with various orthopedic injuries and conditions. Current literature and evidence based practice will also be discussed.

THEA 289 - Intro to Costume Design

The purpose of this course is to cover the basic elements of costume design, including character/script analysis, collaboration, research, visual design ideas and techniques, budgeting and time management. Period research, design, and rendering skills are fostered through practical exercises. Knowledge of costume history and careers in costumes will also be explored. No sewing skills required. A supply packet will accompany the course and must be purchased at the bookstore.

THEA 289 – Plays of the 21st Century

An exploration of the plays, issues, and authors that are taking center stage (also stage left and stage right) since the dawn of the 21st century.
