FALL 2021 NEW COURSES & DESCRIPTIONS

AR-470 PERFORMANCE

This course explores the topics of performance to include songs, poetry, media, and more. We analyze selections of verbal and written art in both written and spoken Arabic. Prerequisite(s): Two 300-level AR courses. Open to B.A. Majors only or department head approval.

CE-273 ONLINE INFORMATION RESEARCH METHODS FOR CIVIL ENGINEERS

This course covers the basic concepts and skills of information literacy, the research process, critical thinking skills, and ethical aspects of information. Cadets are introduced to the characteristics, the formats, and the organization of information, especially the structure of the Web and its components, the Deep Web, the Dark Web, and the Surface Web. In hands-on lab sessions cadets will become expert users of the advanced search options of Google, Duck Duck Go, and other search engines and the Preston Library databases. No prerequisites.

CH-476 MODERN ELECTROCHEMISTRY

All future chemically-driven renewable energy industrial processes and industrial corrosion prevention processes sectors will rely on expertise in electrochemical analysis to support the development of these lucrative fields. Modern Electrochemistry will examine electrochemical techniques used in cutting edge research with the central theme of electrocatalysis – the use of electrochemical techniques to perform reactions traditionally requiring chemical redox agents. A theoretical and practical fundamental understanding of electrochemical techniques will be developed in this lecture-based course. We will start with an introduction to voltammetric techniques with a focus on cyclic voltammetry, rotating ring disk electrochemical analysis, and electrochemical quartz crystal microbalance analysis of both the traditional diffusion based and surface adsorbed substrates, and utilize electrochemical simulation software to model reaction dynamics. Pre-requisite: CH-246 (Inorganic Chemistry)

CH-477 PHOTOCHEMISTRY

Photochemistry is an area focused on the chemical effect of light on molecules. In this course, we will survey both natural and synthetic reactions that rely on the absorption of light to facilitate access to reactive intermediates that are not available through thermal strategies. Pre-requisites: CH223 (Organic Chemistry 1), CH-224 (Organic Chemistry 2), CH-246 (Inorganic Chemistry)
**CHI-470  INTRODUCTION TO CHINESE CINEMA**

Film is one of the most important media through which we learn about and produce culture today. This course provides an introduction to Chinese language cinema and explores the ways in which film has served as a discursive medium for the production of representations and perceptions about China. Students watch and discuss representative films in the 20th and 21st centuries, including films produced in mainland China, Hong Kong, Taiwan, and overseas. They will learn to examine the films in terms of social-historical, political, economic and cultural contexts and their aesthetic qualities and techniques. This course is taught in Chinese. **Prerequisite:** One 300-level Chinese course.

**CIS-477  SECURE SOFTWARE ENGINEERING**

Covers principles of Secure Software Engineering and practical methods to secure requirements, design, implementation and testing of software. Students will learn how to assess security requirements leading to secure software development, and establish a secure software development life cycle (SDLC). The students will also learn how to identify and analyze software vulnerabilities, and how to evaluate and address security risks to software. **Prerequisite(s):** CIS 312W with a minimum grade of C.

**CIS-479  OPEN SOURCE INTELLIGENCE**

In this course, students will learn how to conduct effective, ethical Open Source Intelligence (OSINT) investigations in domains such as journalism, national security, and human rights; and how to develop and evaluate new OSINT tools to address real-world needs. Students will learn fundamental skills for OSINT collection and analysis, especially for social media data, including ethics and security, discovery, verification, preservation, and publication. Students will form teams to build an OSINT tool that fulfills a real-world need. Students will hone their OSINT investigation skills and refine their software tool through participation in several team-based Capture the Flag (CTF) events. **NOTE:** Open to 1st and 2nd class CS majors, CIS & CYS minors only.

**EE-474  REVERSE ENGINEERING**

Reverse Engineering is the process of analyzing hardware and software systems without access to the original source code or documentation. Motivations for reverse engineering a system include security and vulnerability analysis, malware detection, interface design, and system documentation. This course includes hands-on projects that will focus on the fundamentals of reverse engineering with practical experience using available tools. **Prerequisite(s):** EE-339
EE-475  REMOTE SENSING
This course will introduce the fundamental concepts of remote sensing. The primary goal of the course is for students to learn to independently conduct analyses of remotely sensed imagery. The focus of the course will be on the application of remote sensing analysis on a variety of sources to include EO, SAR, IR, multispectral, hyperspectral and LiDAR collection, processing and analytic tools. **Prerequisite(s): EE-242 or instructor approval**

ERH-311  WRITING AND EDITING FOR BUSINESS
This course will center on principles in rhetoric as they play out in the writing that goes on in corporate organizations. Cadets will analyze, produce, and edit significant amounts of workplace writing with the aim to develop rhetorical thinking and writing capacities that can transfer to a wide range of careers. Specific focuses include:

- conducting rhetorical analysis and research in order to master new writing tasks quickly
- thinking logically at all levels of the writing process, from analyzing the rhetorical situation, to generating and organizing content, to crafting syntax
- developing ethical habits of writing for the workplace with truth, fairness, and respect for others’ time
- ensuring factuality and accuracy at all levels of workplace writing
- employing correct grammar, mechanics, and punctuation in order to write with, and edit for, clarity and concision
- analyzing and attending to power dynamics in the workplace as they inhere in written communication
- using written communication to build and manage productive workplace relations, including those that require collaborative writing and editing.

ERH-474  HISTORY OF PHOTOGRAPHY
Generally accepted as the date of the first photograph, 1839 marks the introduction of the “Art of Fixing the Shadow” (Fox Talbot’s first publication on photography). The mostly founding fathers with a few founding mothers mixed in who solved the challenges of creating an entirely new process, established the ground work for generations of like-minded inventors/explorers/artists/creative minds. The 20th Century began by introducing Kodak’s Brownie camera—the first camera introduced to the masses—and ended with the iPhone—the camera most people now carry in their pockets and use for their primary source of images.

This course will survey some of the key artists, applications, and debates of photography throughout this time period. The course will have a particular focus upon photography of the United States. Moving thematically, we will consider amateur and professional photographs, artistic movements, socially concerned documentary photography, and news coverage. We will explore the impact of both World Wars and the Vietnam War upon culture and photographic styles, as well as intersections between modern painting, sculpture, and photography. The collecting practices and exhibitions of the Museum of Modern Art from the 1940s through the 1970s provide an entry to key debates about the medium’s place in the museum and the art market. In the final part of the course, we will consider YouTube, Instagram, and fashion magazines as sites for artists to explore contemporary issues of representation, identity, race, and gender. **Prerequisite(s): ERH-102 with a minimum grade of C.**
HI-300 AMERICAN CIVIC EXPERIENCE

This course will familiarize cadets with the philosophical principles and debates that shaped the 1787 Constitutional Convention, ground cadets’ knowledge of the U.S. Constitution, examine the historical context of Constitutional amendments, facilitate cadet understanding of key Supreme Court cases that refined the Constitutional fabric, and discuss the Constitutional obligations of citizen soldiers. **NOTE: open to rising first and second classmen. No other course prerequisites. This course is suitable for STEM majors as well as humanities and social science majors.**

HI-371 HISTORY OF BYZANTIUM

An upper level survey of Byzantine History. Beginning with the foundation of Constantinople in the fourth century A.D. and concluding in 1453 with its fall to the Ottoman Turks, the course charts the often-overlooked history of one of history's longest lasting political institutions. In addition to political narrative, the course examines several themes including political institutions, imperialism, and religion during the medieval period; cross-cultural interaction; Byzantine literary culture; and the contributions of Byzantine history both to other historical disciplines and to the modern world. A broad selection of primary sources will supplement assigned textbook and other secondary readings.

HI-381 ENVIRONMENTAL HISTORY

This upper level interdisciplinary course surveys the history of humanity's relationship with the natural world beginning in the 16th century and ending with contemporary environmental challenges. Key topics include the evolution of agricultural and pastoral lifeways; famine and epidemics; the ecology of colonialism and industrial civilization; decolonization and environmental justice; the Great Acceleration, the Anthropocene, and climate change; and the dynamic relationship between nature and culture. This course utilizes a broad selection of primary sources and secondary readings.

IS-302 CHINA’S FOREIGN POLICY

This course will emphasize the analytic study of motivations, objectives, means, manifestations and consequences of Chinese foreign policy. We will discuss the Chinese foreign policy-making apparatus, procedures and styles. We will focus on China’s role in the contemporary world and understanding foreign policy problems facing China. Special attention will be given to US China relations past and present.
IS-303  GLOBAL ENVIRONMENTAL POLITICS

Environmental issues have become major concerns for relations among states, and have engaged many non-state actors. Many inter-governmental organizations and agencies have acquired new roles in coordinating and regulating environmental policy. Multinational corporations, groups of scientists, and transnational civil society organizations have increased activism and public awareness about growing environmental problems and strategies to address them. Environmental issues will have growing relevance to non-traditional security of nation states and ecological regions that cross national boundaries.

IS-471  SPACE POLICY

This course introduces cadets to the theory and practice of policymaking for the outer space frontier. Topics considered include the geopolitical significance of historical and contemporary spaceflight programs, the rise of private space commerce and its relationship to public policy, the development of the United States Space Force, and the future of space exploration and exploitation. Scholarly readings from political science and history are supplemented by primary source materials from governments and corporations as well as selections from fiction and futures studies.

IS-474  INTERNATIONAL POLITICAL ECONOMY

Following the publication of Adam Smith’s The Wealth of Nations and the innovations of the Industrial Revolution, global commerce and investment suddenly became both economically desirable and relatively easy -- but it wasn't always politically popular. This course familiarizes cadets with the politics of the global economy, emphasizing the preferences, power, and trade-offs inherent in economic policymaking. The subfield of international political economy (IPE) is traditionally divided into trade and finance, so the course covers historical trends in these two arenas in turn: we consider the determinants of societal preferences and how these connect to the range of policy options available to government actors setting national-level economic policy, and go on to discuss the implications of these policies for societal welfare and international development. In addition to these foundational topics, cadets will analyze "newer" topics in the global economy, including the politics of multinational corporations, labor migration, global financial crises, and environmental pushback against globalization.
**IS-477 STRATEGY & POWER**

This course examines the theory and practice of military strategy, the use of military force to achieve political ends. Initial attention is given to the canon of ancient and modern writers who made significant contributions to strategic thought. Consideration then turns to the social scientific explanations of military effectiveness. Among the factors considered are force employment, regime type, civil-military relations, and military culture. The final component of the course considers various explanations of strategic success and failure. Orienting this investigation is the (sometimes shifting) political motivation for the use of military force.

**PY-170 HOW THINGS WORK**

This course looks at the mechanical and electrical workings of various devices used in everyday life; such as the bicycle, microphone, and noise-cancelling headphones. As far as is practicable, the course emphasizes an intuitive and hands-on approach. This course is intended for non-science majors who are interested in discovering the physics of how things work. The course will require some use of simple algebra. **Note: Open to EC, EN, HI, IS, MC and PS majors only.**