

SP26 SPECIAL TOPICS

The Science of Endurance Performance: HPW 470

This course will examine the physiological factors that determine endurance and provide a foundation in program design to enhance performance. In addition to lectures, cadets will participate in the laboratory and practical field experiences designed to deepen their understanding of exercise physiology and endurance training. Related topics that influence endurance including ergogenic aids, environmental factors, age, and biological sex will also be explored.

Prerequisite(s): NA

Restriction(s): NA

Chinese Foreign Relations: IS 320

This course is designed to illuminate how China conceives of its interactions with other nations and how it behaves in political, economic and cultural terms within our shared, dynamic global system. Unit 1: We will begin with a review of the foreign relations of the PRC from 1949 to the present. We will consider historical legacies of empire, authoritarianism and nationalism in Chinese governance, and the evolution of a possible grand strategy in PRC's relations abroad in Asia and worldwide. What are the players, roles and institutions that make foreign policy in the PRC? How has this evolved from the Mao, Deng and the current Xi periods in China foreign relations? Unit 2: China interacts with other nations in four domains: economic, cultural and military relations, and by participating in various global governance regimes. Unit 3 will explore a series of China's major bilateral and regional relations (e.g. with the USA, Russia and central Asia, India, Europe, other East Asian nations (such as Japan, the two Koreas, and ASEAN - Southeast Asia), Middle East, Africa and Latin America. A special section will analyze how Taiwan, formally considered by China as a domestic matter, plays a role in the international relations of the PRC. Unit 4: will study multilateral topics in the foreign relations of the PRD, such as environment and energy policy, the Belt and Road Initiative (BRI), China in the UN, international trade policies and the global aspects of China's ambitions for industrial growth and R&D. The course will finish by considering future challenges for China's statecraft and diplomacy in its foreign relations.

Prerequisite(s): NA

Restriction(s): NA

China in the Modern World: IS 303

A major question we will address is to what extent has the communist revolution in China fit the deep pattern of dynastic change from the Han through the Qing? On the other hand, in what ways has the rise of the communist state over the past 100 years been a distinctly modern political and socio-economic process of the collapse of an empire and the formation of a modern state? Has the PRC state broken with the imperial Chinese past? Or is it bent on recreating imperial power in the 21st century?

The four major turning points we will study in depth will be:

1. The fall of the Ming and establishment of the Qing (Manchu) dynasties in the 1620s to 1660s period
2. Qing dynasty encounters with the West in the mid 19th century, and its subsequent collapse in the early 20th century
3. The failed republican state of the Kuomintang (Nationalists) from the 1912 to 1949
4. The success of the communist movement from rural uprisings to the formation of a Stalinist state drawing on an industrial economy that aims to be a leading global power in the 21st century

Prerequisite(s): NA

Restriction(s): NA

Liberalism and Its Critics: IS 374

This course introduces cadets to liberalism and its critics, exploring tensions between political conceptions of the individual and community, contract and tradition, freedom and obligation, equality and hierarchy, and more. Throughout the course, we will place particular emphasis on how these conversations inform conceptions of property. The majority of the course will cover the canon of liberal political theory, such as works by John Locke and J.S. Mill. The next portion surveys thinkers in contemporary conversation defending liberalism, such as John Rawls. In the last section of the course, we will discuss the critics of liberalism, covering thinkers like James C. Scott and Patrick Deneen.

Prerequisite(s): NA

Restriction(s): NA

Politics & Literature: IS 473

Political philosophy asks questions and seeks answers relating to the nature of justice or the just society. The texts that have explored this question since the earliest Platonic dialogues have predominantly done so through the use of reason or analytic intellect, often taking the form of philosophical treatises, speeches, or letters. However, some of the most penetrating insights into the nature of justice have also been articulated through the use of the imagination, as one finds in certain novels, plays, and short stories. In fact, it may be argued that the aesthetic sense is sometimes superior to reason for its ability to synthesize or combine information into conceptual wholes—precisely not to dissect or separate these elements—to express what is important or significant, as understood from within human experience or reality itself. The scope of fictional writing that addresses questions of justice or the just political order is too vast to cover in a single semester. Therefore, this course will focus on a particular issue or special topic within the latter that is addressed by a narrow subset of these works. By applying the insights of such texts to one's own life and contemporary society, cadets will be asked to comprehend and ultimately respond to each author's claims as part of an ongoing dialogue on the nature of the just society. Questions to be examined may include, but are not limited to: Does the just society require a certain type of character or virtue among its citizens? What are the threats to individual liberty that exist outside the formal institutions of law and government? How do commonly accepted ideals such as "happiness" and "progress" relate to our understanding of political authority? What (if any) are the limits or givens that we must simply accept or contend with as part of any human society?

Prerequisite(s): NA

Restriction(s): NA

Democratization and Regime Change: IS 472 (With CIC Approval: IS 436)

The goal of this course is to familiarize cadets with key approaches and debates on democratization and regime change. We will examine structural, institutional, and agency-based approaches on democratization. We will also focus on what outside powers such as the US should (or should not) do to promote democracy abroad. Our readings will focus on both classical and more recent works on the subjects with heavy emphasis on discussions.

Prerequisite(s): NA

Restriction(s): NA

Concepts in Mathematical Biology: MA 374

An exploration of mathematical applications to the field of biology, including: predator-prey relationships, population models, disease spread, patterns in nature, and mathematical physiology.

Prerequisite(s): MA-110, ME-203 or PY-223; & MA-311

Restriction(s): NA

Data Visualization with R: MA 375

This is an introductory course on Data Visualization using R, a widely used free statistical software popular in both academia and industry. Students will learn how to import data, prepare it for analysis, and visualize it using a variety of tools. The course covers appropriate visualization techniques for different types of data, including univariate and multivariate, as well as quantitative and qualitative data. Visualization methods will range from basic plots such as histograms to more advanced techniques like hierarchical trees and heat maps. R will be used extensively throughout the course.

Prerequisite(s): MA-106 or MA-220

Restriction(s): NA

Introduction to Clustering Analysis: MA 377

Description: This course introduces students to the fundamentals of clustering analysis using R statistical software. Topics include distance metrics, hierarchical and partitional clustering methods, and basic techniques for evaluating clustering quality. Students will gain hands-on experience applying clustering algorithms to real-world datasets using R. Prior experience with R is not required, though familiarity with programming and basic data analysis concepts is highly encouraged.

Prerequisite(s): MA-106 or MA-220

Restriction(s): NA

Introduction to Machine Learning: CIS 475

This course is designed to provide a general introduction to machine learning and its applications. Topics covered include regression analysis, classification models, clustering analysis, logistic regression, decision trees, k-means, hierarchical clustering, features selection, model selection, model tuning, ensemble techniques, natural language processing, computer vision, and neural networks.

Prerequisite(s): CIS-213

Restriction(s): NA

Advanced Clinical Psychology: PS 471

This advanced undergraduate course examines Paul Meehl's *Five Noble Traditions* of clinical psychology—descriptive clinical psychiatry, psychometrics, behavior genetics, behavioral modification, and psychodynamics—as the foundational intellectual streams that shaped the modern field. Students will explore how each tradition contributes distinct methods, assumptions, and forms of evidence to the understanding and treatment of mental disorders. Through primary readings, discussion, and case analysis, the course emphasizes Meehl's call for integration between empirical rigor and clinical insight. By the end of the semester, students will appreciate how these five traditions continue to inform contemporary debates about diagnosis, assessment, and evidence-based intervention.

Prerequisite(s): PS-305 & PS-315

Restriction(s): NA

Introduction to Quantum Information: PY 263

In the effort of advancing quantum information at the undergraduate level, this introductory course will expose students to basics of manipulating information using principles of quantum mechanics. Topics will be selected from the following: Dirac notation, quantum state, quantum bit (qubit), superposition, entanglement, Bloch sphere, coherence, quantum sensing, communication and information, and quantum computers.

Prerequisite(s): NA

Restriction(s): NA