

Recent HNRS Course Offerings – HNRS 200-level courses

HNRS 240

Statistics in an Online World

The objective of this course is to explore probability and statistics through social media, smartphone use, and online retailers. The focus of this course will be asking questions and then developing the statistical techniques necessary to answer those questions. Armed with probability theory and statistical techniques we will determine how to summarize, analyze, and communicate key features of a data set. As applications, we will investigate how to quantify and improve the effectiveness of technology including websites and social media, how to use statistics to help business's improve their presence on Facebook, and how online retailers and social media sites use consumer data.

HNRS 241

Mathematics in Art

How can mathematics deepen our understanding of art? How can art illuminate mathematical concepts? These twin questions launch an investigation of the interplay of two subjects typically considered to be disjoint. The first question leads to an exploration of pattern, symmetry, and dimension. The companion question seeks an alternative to the use of standard mathematical symbols and notation as the means of engaging mathematics. Use of color opens the door to more visual representations of mathematics, facilitating "Aha!" moments to a broader audience.

HNRS 250

From Microbe to Meal (Biology)

From Microbe to Meal will build on the idea that agriculture is critically important to our existence, that we must be wise in the use of one of our most fragile resources, soil, and that microorganisms literally run the planet. Answering questions about soil and agriculture will require examining how science works, including an understanding of what cells are, how organisms make and use energy, how populations change, and how organisms interact with the environment. Biology, like all sciences, relies on inquiry and critical thinking to discover the nature of the universe. The lab component of this course will focus on how science is conducted, through observing and generating hypotheses, experimentation, data collection, and analysis. Students will also offer a significant solution to a problem in agriculture and present the solution in the form of a poster session and panel discussion.

Chemistry and Crime (Chemistry)

How can science, in general, and chemistry, more specifically, contribute to the investigation of crime? The evening news, the primetime TV lineup, and the local bookstore are all filled with examples of the work of forensic scientists. This course will emphasize fundamental chemical principles that allow us to understand the techniques used to analyze evidence from a crime scene. From bloodstains to drug identification to DNA fingerprinting, commonly employed techniques of the forensic scientist will be studied. In the laboratory, students will perform some of these same analyses used by professional criminologists to solve simulated crimes. Students will also use general chemistry principles to design their own analysis methods. Finally, the class will engage the Roanoke College community around the issue of alcohol use. In addition to learning about the chemistry and biochemistry of alcohol and about

how technicians analyze alcohol levels in the blood, we'll research alcohol use and abuse at Roanoke and report our findings to the campus.

HNRS 260

Psychology in the Media

News organizations, magazines, and blogs often report findings from psychological science; movies and television shows often depict psychological concepts. This course explores the core methodologies of psychological science by comparing and contrasting popular vs. scientific treatments of current and perennial topics within the various subfields of psychology. Students will critically examine sources of popular media to determine instances when the media has reported or depicted psychological science accurately and when they have not, considering the when, why, and how courses of popular media manipulate findings to make their point. Additionally, students will partner with a local community organization to create an in-depth, popular press report that reviews a topic of relevance to our community (e.g., homelessness, mentoring, aging in place, alternative therapies), integrates findings from recent psychological research, and highlights the organization's work related to the phenomenon.

What is a Constitution? (Political Science)

What is American constitutionalism? How can theoretical accounts of concepts such as human nature, liberty, equality, leadership, tyranny, and the rule of law contribute to our abilities to analyze American constitutionalism? These questions will be considered with guidance from representative Western and American political thinkers. Students will apply their growing philosophical frameworks for interpreting American constitutionalism to contemporary constitutional and political issues.

Gendered Poverty (Sociology)

"Women are half of the world's population, yet they do two-thirds of the world's work, earn one-tenth of the world's income, and own less than one percent of the world's property." This statement is often cited in books and websites on women in developing countries. While the accuracy of this statement has been questioned, it nevertheless references an important issue and will be the focus of our inquiry in this course: how does gender shape the experience of economic inequality? This course is an examination of men's and women's experiences of economic inequality around the world AND in the United States through the lens of sociology.

HNRS 270

Along the Silk Road

Did globalization exist in the pre-modern period? How did people travel, exchange ideas, and manage business two thousand years ago? Can contemporary globalization be traced back to the ancient and medieval period? We will approach these questions through the examination of the Silk Road across Eurasia. The Silk Road was the first transcontinental trading route between East and West, connecting the eastern end of the Asian continent (China, Japan, and Korea) to the Roman Empire as it passed through Mongolia, Central Asia, Middle East, India, Southeast Asia, and the Mediterranean area. Through this long-lasting transportation channel, people not only traded luxury goods and commodities, but also exchanged ideas, religious beliefs, artifacts, various foodstuffs, and forms of entertainment.

Ancient Heroes & Heroines

Achilles' heel, Trojan horse, Penelope's patience -- figures from ancient and classical literature continue to play important roles in our lives. This literature spawned the first heroes, and the world needs heroes. Through reading original tales of Mesopotamian, Greek, and Roman heroes and heroines together with considering more modern treatments in films and literature, we will explore types of heroism, the relationship of heroes and heroines to their societies, the personal costs of heroism, and the reasons women so rarely were portrayed heroically. Who were these heroes? What did they represent? Why were they admired by their producing cultures? How did the idea of a hero change over time? How do they compare to our modern ideas about heroes and heroines? How and why do they constitute such a significant role in human cultures -- including our own? And why do their stories continue to engage, to entertain, and even to shock us?

Islamic Spain

How did Islamic Spain transmit Classical and Arabic knowledge to medieval Europe, and did this "seed" the Renaissance? Is medieval Spain an example of religious tolerance we can use today? For over 700 years, Islamic peoples controlled parts of Spain. During Europe's medieval period, Islamic Spain's cities were glittering, sophisticated beacons of a world where Jews, Muslims, and Christians lived together, translated Europe's lost Classical treasures back from Arabic into Latin, and introduced Europe to Arabic advances in science, math, agriculture, and the arts. Islamic Spain also fascinates our increasingly globalized world since it seems to be a rare example of coexistence among the world's three principal monotheistic religions—what the Spanish call *convivencia*, "living together." We will focus on two larger historiographical questions about Islamic Spain: its role in transmitting Arabic knowledge to Europe and the example it may—or may not—present of religious tolerance.

HNRS 271

Science Fiction

The focus of inquiry of this course is a critical exploration of how the alien worlds of science fiction are related to our own, even when they seem to be very different on the surface. The idea of estrangement or alienation is seen as being central to science fiction; after all, this is a genre that explores worlds that are different from ours. However, influential theorists of the genre have made the claim that science fiction offers ways of engaging with the present while appearing to be focused on the future. According to Darko Suvin's definition of science fiction, a tension between the familiar and the strange is built into this genre. This course will explore how science fiction offers us ways of re-conceptualizing and representing the present, even in texts set ostensibly in the future and on strange worlds.

American Migration & Identity

How do we reconcile the truism that the U.S. is a nation of immigrants with the current American turmoil over immigration? What about past traumas over migrations into or within the country? This land mass has witnessed constant migration and assimilation of culturally disparate peoples for 500 years, and yet the settled populations always seem to forget their history in their anxieties concerning new arrivals. These anxieties manifest in widely varied ways, of course, and surely have varied roots as well. What can we glean from studying past patterns? How does race figure? What is different/comparable today? What aids assimilation? How does a foreigner become a neighbor? This course studies stories of U.S. migration, fiction and non-, at the individual level and group level, in order ask better questions of our present moment. Integral to the course is working, through a local agency,

with individual new ESOL immigrants to Roanoke, to help them identify, tell, and write their personal stories.