High School Summer Scholars Program
2019 Course Listings
Session A (June 9-July 13)

Please note the following:
1. These course listings are subject to change and cancellation without notice.
2. Students are permitted to enroll in a maximum of 7 units.
3. Students must meet all prerequisites listed in order to receive permission to enroll in a course.
4. If a course is full, it will be indicated in the course description.
5. International students must register for at least 6 units to qualify for F-1 visa.

Guide to Course Listings:

**ANTHROPOLOGY**

**INTRODUCTION TO HUMAN EVOLUTION**
This course is a survey of the fossil evidence for human evolution. The course includes discussion of the genetics of human variation and evolution, the study of living nonhuman primates, and the fossil record and its interpretation. An evolutionary perspective is used in an attempt to understand modern humans from the naturalistic point of view. This course may include off-campus field trips.

**Prerequisite:** None

Session A
L48 150A (3 units)
MTuWThF 9:00a-10:45a

**INTRODUCTION TO CULTURAL ANTHROPOLOGY**
This course covers the basic concepts and theoretical principles of sociocultural anthropology. Course material is presented from Asia, Africa, Melanesia, Latin America and North America. This course may include off-campus field trips.

**Prerequisite:** None

Session A
L48 160B (3 units)
MTuWThF 1:00p-2:45p

**BIOLOGY**

**INTRODUCTION TO PROBLEM-BASED LEARNING IN BIOLOGY**
Have you ever wondered how doctors and scientists diagnose and discover cures to modern human afflictions? In this course, students will be given a general topic and break up into small groups to research questions related to that topic. We will all report back to the group each week with what we’ve found, and provide each other with interesting facts about our topic, as well as hints for conducting inquiry-based research. The instructor will guide students on how to conduct in-depth research on problems of current biological importance using a variety of web-based search engines and library tools, with a strong emphasis on learning how to read and interpret primary research articles. Weekly topics from previous years have included psychological disorders, genetics of sleep regulation, reproductive therapies, alternative medicine, and human evolution. Students should have broad interests and background in general biology and chemistry and should be curious, exploratory, interactive, and willing to try an active, nontraditional educational experience. There are no exams, so grades will be based on class participation, weekly group presentations, written outlines, and a final iSearch paper on a topic of their choice.

**Prerequisite:** high school honors or AP biology

Session A
L41 112 (3 units)
MWF 9:00a-12:00p

**BIOLOGY OF THE BRAIN**
This course is for students who wish to learn about the biology of the nervous system, and the scientific process of understanding how it works. Biology of the Brain will include lecture, discussion, and analysis of cutting edge research, so active participation will be important. We will discuss the gross anatomy and cellular composition of the brain. We will discuss how the brain is organized to process sensory information such as vision and to generate motor activity. We will analyze how the brain develops,
changes with experience to create memories, and recovers from injury. Along the way, we will discuss nervous system dysfunction a range of contexts such as Addiction, Alzheimer's Disease, and Parkinson's Disease. This course counts as a Natural Science and Mathematics (NSM) distribution requirement.

**Prerequisite:** high school honors or AP biology

**Session A**
L43 120 (3 units)
MTuWThF 3:00p-4:45p

**GENERAL BIOLOGY I**
First part of a two-semester rigorous introduction to basic biological principles and concepts. This course covers the molecular and cellular basis of life, bioenergetics, signal transduction, DNA and protein synthesis, and the function of whole organisms (physiology). Laboratories include traditional wet labs as well as inquiry-based, on-line labs.

**Prerequisite:** high school biology (preferably honors level) and AP chemistry

**Session A**
U29 101 (4 units)
MWF 6:00p-8:30p and TuTh 5:00p-9:00p

**INTRODUCTION TO ANATOMY AND PHYSIOLOGY I (Lecture only)**
This is the first of a two-semester sequence that examines all major organ systems in the human/mammalian body. The emphasis is on understanding normal function and processes at the gross, cellular, and molecular levels. The course also addresses pathology and disease. Course covers histology, bone, muscle, and nervous systems, including sensory function and the special senses.

**Prerequisite:** None

**Session A**
U29 3221 (3 units)
TuWTh 9:00a-12:00p

**INTRODUCTION TO ANATOMY AND PHYSIOLOGY I (Lecture and lab)**
This is the first of a two-semester sequence that examines all major organ systems in the human/mammalian body. The emphasis is on understanding normal function and processes at the gross, cellular, and molecular levels. The course also addresses pathology and disease. Course covers histology, bone, muscle, and nervous systems, including sensory function and the special senses.

**Prerequisite:** None

**Session A**
U29 322 (5 units)
TuWTh 9:00a-12:00p and TuWTh 5:30p-9:20p

**CHEMISTRY**

**GENERAL CHEMISTRY I**

**Prerequisite:** AP chemistry, honors or AP physics, and two years of high school mathematics (AP Calculus AB preferred)

**Session A**
L07 111A (3 units)
MTuWThF 9:00a-10:45a

**GENERAL CHEMISTRY LABORATORY I**
This course provides an introduction to basic laboratory techniques, the experimental method, and the presentation of scientific data, as well as direct experience with chemical principles and the properties and reactions of substances. The topics and experiments in this course complement the material covered in the Chem 111A lecture course.

**Prerequisite:** AP chemistry, honors or AP physics, and two years of high school mathematics (AP Calculus AB preferred)

**Session A**
L07 151 (2 units)
TuTh 1:00-2:45p/MWF 1:00-5:00p

**DANCE**

**BEGINNING TAP DANCE**
Intro to basic tap steps and rhythms. Development of awareness of varied tap dance styles. No previous dance training required. This course is available Pass/Fail only. MUST bring tap shoes to class.

**Prerequisite:** None

**Session A**
U31 225 (1 unit)
MW 5:30-7:15pm
ECONOMICS

INTRODUCTION TO MICROECONOMICS
Determination of prices; distribution of national income; theory of production. For a thorough introduction to economics L11 1021 should also be taken, but is not required.
**Prerequisite:** None

**Session A**
L11 1011 (3 units)
MTuWThF 9:00a-10:45a

INTRODUCTION TO MACROECONOMICS
Business fluctuations: inflation, recession; monetary and fiscal policy; economic development. For a thorough introduction to economics L11 1011 should also be taken, but is not required.
**Prerequisite:** None

**Session A**
L11 1021 (3 units)
MTuWThF 1:00p-2:45p

ENGLISH LITERATURE

TOPICS IN ENGLISH AND AMERICAN LITERATURE: BANNED BOOKS: FROM THE GIVER TO THE LORD OF THE FLIES
In this course we will read a number of Young Adult novels that have been banned and examine what leads to the banning of a book. Why are YA novels particular targets of censorship, and why does society attempt to sanitize narratives about adolescence? The novels we will cover, by Toni Morrison, Stephen Chbosky, William Golding, and Lois Lowry, among others, have been banned in the United States on political, religious, sexual, or social grounds. We will gain insight into the controversies these novels started and also consider the themes and questions raised by the texts and their moral implications. In written assignments and class discussion, we will explore what, if anything, these novels have in common and what they may contribute to the study of literature. Students will be asked to engage critically with the texts they encounter and to hone their close reading skills while also considering historical and cultural contexts of the novels. Readings: "The Lord of the Flies," William Golding; "The Perks of Being a Wallflower," Stephen Chbosky; "The Bluest Eye," Toni Morrison; "The Giver," Lois Lowry; "The House on Mango Street," Sandra Cisneros.
**Prerequisite:** None

**Session A**
L14 245 (3 units)
MTuWThF 1:00p-2:45p

INNOVATION

DESIGN THINKING: HUMAN-CENTERED APPROACHES TO MAKING THE WORLD
This course provides an overview of approaches to design thinking: a process of identifying, creating, and implementing solutions. Through an experiential approach, students learn methods for understanding users' needs, synthesizing complex information, identifying directives for design, generating ideas, prototyping, and communicating solutions. Methodologies will reflect multiple areas, including design, engineering, business, and anthropology. The class operates collaboratively tackling a locally relevant problem, such as active transportation or waste management. Students also explore the role of this process in business, organizations promoting social change, and education through readings, case studies, lectures, guest speakers, discussion, and written exercises. No previous experience in design is required.
**Prerequisite:** None

**Session A**
U44 290 (3 units)
MTuWThF 3:00p-4:45p

LINGUISTICS

INTRODUCTION TO LINGUISTICS
Language is one of the fundamental capacities of the human species, and there are many interesting and meaningful ways in which it can be studied. This course explores the core components of linguistic theory: speech sounds (phonetics and phonology), word formation (morphology), sentence structure (syntax), and meaning ( semantics). It also provides an overview of interdisciplinary ideas and research on how language is acquired and processed, its relation to the mind-brain and to society, and the question of whether the essential properties of language can be replicated outside the human mind (specifically, in chimpanzees or computer programs).
**Prerequisite:** None

**Session A**
L44 170D (3 units)
MTuWThF 1:00p-2:45p
MATHEMATICS

INTRODUCTION TO STATISTICS
Data collection: sampling and designing experiments. Data organization: data, tables, graphs, frequency distributions, numerical summarization of data, and consumer price index. Inference: elementary probability and hypothesis testing.
Prerequisite: None

Session A
L24 1011 (3 units)
MTuWThF 1:00p-2:45p

ELEMENTARY PROBABILITY AND STATISTICS
An introduction to probability and statistics. Discrete and continuous random variables, mean and variance, hypothesis testing and confidence limits, nonparametric methods, Student's t, analysis of variance, regression, and contingency tables. Graphing calculator with statistical distribution functions (such as the TI-83) may be required.
Prerequisite: AP Calculus AB with a grade of B or better

Session A
L24 2200 (3 units)
MTuWThF 1:00-2:45p

MATRIX ALGEBRA
Theory of matrices and vector spaces from a concrete, computational point of view. Topics: row reduction (pivot method), rank and dimension, determinants, eigenvalues and eigenvectors, and diagonalization of symmetrical matrices.
Prerequisite: AP Calculus BC with a B or better

Session A
L24 309 (3 units)
MTuWThF 9:00a-10:45a

PHILOSOPHY

BIOMEDICAL ETHICS
A critical examination, in light of contemporary moral disagreements and traditional ethical theories, of some of the moral issues arising out of medical practice and experimentation in our society. May include euthanasia, genetic engineering, abortion, medical malpractice, the allocation of medical resources, and the rights of the patient.
Prerequisite: None

Session A
L30 233F (3 units)
MTuWThF 1:00p-2:45p

PHYSICS

GENERAL PHYSICS I
First semester of a two-semester, calculus-based introductory physics sequence designed to expose students to the concepts, laws, and structure of physics. Topics include kinematics, Newton’s laws, energy, linear momentum, angular momentum, conservation laws, gravitational force, harmonic motion, wave motion and interference, sound, and special relativity. Five 2.75-hour lectures and two 3-hour lab sessions each week (all mandatory).
Prerequisite: AP Calculus AB with a grade of B or better

Session A
L31 117A (4 units)
MTuWThF 9:15a-12:00p and MW 1:30p-4:30p

POLITICAL SCIENCE

AMERICAN POLITICS
This course is meant to introduce students to the study of American Politics. We will analyze the origins, developments, actors, institutions, and processes of the American political system. In addition to the three branches of government, we will also cover topics such as public opinion, the media, campaigns and elections, political parties, civil right and liberties, and more. By the end of the class, students should become more careful and insightful consumers of political knowledge.
Prerequisite: None

Session A
L32 101B (3 units)
MTuWThF 9:00a-10:45a

INTRODUCTION TO COMPARATIVE POLITICS
One of the primary goals of a course in comparative politics is to familiarize students with a broad array of political systems. The approach taken in this course can best be characterized as the active acquisition and use of a set of tools for looking at the political world. In other words, instead of putting emphasis on what textbook writers think
political scientist know, in this course the emphasis is on “how we know what we know” and on building knowledge. This approach equips students with a set of tools to use long after the course is over. These comparative tools are focused on historical, recent, and current events, and students are provided the opportunity to delve more deeply into a study of the parts of the world most they find most interesting

**Prerequisite:** None

Session A  
L32 102B (3 units)  
MTuWThF 1:00-2:45p

**PSYCHOLOGY**

**INTRODUCTION TO PSYCHOLOGY**

Survey and analysis of concepts, research, and theory covering the areas of learning, memory, motivation, personality, social, abnormal, clinical, and biological psychology. Introduces the diversity of questions, areas, approaches, research, and theories that compose the study of mind and behavior.

**Prerequisite:** None

Session A  
L33 100B (3 units)  
MTuWThF 1:00-2:45p

**RELIGIOUS STUDIES**

**Religion and American Society**

This course explores religious life in the United States. We will focus our study on groups and movements that highlight distinctive ways of being both "religious" and "American," including the Americanization of global religions in the US context. Major themes will include religious encounter and conflict; secularization, resurgent traditionalism, and new religious establishments; experimentalism, eclecticism, and so-called 'spiritual' countercultures; the relationship between religious change and broader social and political currents (including clashes over race, class, gender, and sexuality); and the challenges of religious multiplicity in the US. You will: 1) acquire knowledge of the disparate religions practiced in North America during the twentieth century and beyond; 2) examine some of the chief conflicts as well as alliances between religion and the American social order in a global context; and 3) develop interpretive tools for understanding religion’s present and enduring role in the US and the world.

**Prerequisite:** None

Session A  
L23 2010 (3 units)  
MTuWThF 3:00-4:45pm

**SOCIOLOGY**

**Social Problems and Social Issues**

Through a sociological lens, this course examines the causes and consequences of pressing contemporary social problems in the United States, including increasing poverty and inequality, "modern" racism and sexism, the crisis in health care (with a unique focus on the lack of adequate mental-health services), crime, incarceration and criminal justice, changing patterns of drug abuse, fragile family structures, globalization and assaults on human rights, and environmental degradation. We will also examine the empirical underpinnings on the basis of inequality focusing on the intersection of disadvantaged statuses related to race, social class, gender, ethnicity, and sexuality that heighten the risk for social problems and how these risks play out in American society. Through a research project, students will learn how innovative sociological paradigms (some of which have been created outside of the United States) can offer guidelines for successful intervention strategies. Briefings from a few agencies dealing directly with these problems will share perspectives on theoretical and applied work related to advocacy, justice, and interventions. This course is especially relevant for those interested in graduate work and career goals in health and medicine, social service, law, and public policy.

**Prerequisite:** None

Session A  
L40 206A (3 units)  
MTuWThF 3:00p-4:45p

**WOMEN, GENDER, AND SEXUALITY STUDIES**

**Introduction to Women, Gender, and Sexuality Studies**

This course will provide an introduction to the major and concepts in the interdisciplinary field of women, gender and sexuality. We will examine the meanings attached to terms such as "man," "woman," "gay," and "sex." Topics discussed may include the history of feminist movements, masculinity, biological frameworks for understanding gender, intimate violence, sexual identities, and intersectionality.

**Prerequisite:** None

Session A  
L77 100B (3 units)  
MTuWThF 9:00a-10:45a