High School Summer Scholars Program
2019 Course Listings
Session B (July 14-August 16)

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 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:

**AMERICAN CULTURE STUDIES**

**THE AMERICAN CITY**
The American city has multiple forms: as a place to live and work, as a measure of economic vitality, as an architectural creation, as a political setting for both the promise and peril of democracy, and as a mythic backdrop for fictive struggles of identity formation and personal liberation. This course will begin a student’s exploration of American culture and politics, with St. Louis serving as field laboratory for investigations that will also present the lives of New York, Chicago, New Orleans, Philadelphia and other cities. American cities carry material evidence of the economic and political reasons that they exist, the transportation networks that shape them, the street plans that give them form, the governments that provide the public good, the people who call them home, the role of public transportation systems, the geography of racial segregation, and the histories of immigrant communities. At the same time, the role of the American city has changed significantly in the 21st century when most Americans now live in suburbs surrounding older cities. Throughout the semester, this course will analyze the material and social culture of American cities through a series of lectures, films and field trips.

**Prerequisite:** None

**Session B**
L98 276 (3 units)
MTuWThF 3:00p-4:45p

**ANTHROPOLOGY**

**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.

**Prerequisite:** None

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

**INTRODUCTION TO ARCHAEOLOGY**
Archaeology plays a critical and unique role in understanding the human past. Through study of the methods and theories of archaeology, and a survey of important firsts in the human past, this course introduces students to the way archaeologists use material culture to reconstruct and understand human behavior. Chronologically-ordered case studies from around the globe are used to look at social, ecological, and cultural issues facing humans from the earliest times to the present. Students gain practice reconstructing the past through hands-on participation in two 1-hour labs focusing on lithics and animal bones. By the end of the course, students are expected to be able to think critically about how the past is presented, and why, and the importance of the past as it relates to the present and future. This course may include off-campus field trips.

**Prerequisite:** None

**Session B**
L48 190B (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 B
L41 112 (3 units)
MWF 9:00a-12:00p

GENERAL BIOLOGY II

Second semester of a two-semester sequence that provides a broad but rigorous introduction to basic biological principles and concepts. This course covers DNA technology and genomics, the genetic basis of development, the mechanisms of evolution, the evolutionary history of biological diversity, plant form and function, and ecology. Laboratories include traditional wet labs as well as inquiry-based on-line labs.

Prerequisite: AP biology and chemistry

Session B
U29 102 (4 units)
MWF 6:00p-8:30p and TuTh 5:00p-9:00p

CHEMISTRY

TOPICS IN GENERAL CHEMISTRY

This course is designed to help students successfully transition from high school AP chemistry to the college level. It provides a general introduction to topics that entering freshmen typically find among the most difficult to master in a first-semester general chemistry course, including the nature and structure of the atom, quantum chemistry, and the nature of bonding. Students gain familiarity with the way in which a rigorous college chemistry course is taught and receive a realistic exposure to the nature of quizzes and exams. Problem sets, selected readings, and group problem-solving strengthen skills and facilitate learning.

Prerequisite: high school honors or AP chemistry and high school algebra

Session B
L07 102 (3 units)
MTuWThF 11:00a-12:45p

DANCE

BODY CONDITIONING

This course improves flexibility, alignment, muscle strength, and movement awareness through a combination of methods derived from yoga, Pilates-based work, and basic dance techniques. Includes comparison of breathing techniques in yoga and the Pilates method. Students should bring a mat and be prepared for rigorous work. This course is available Pass/Fail only.

Prerequisite: some dance/movement experience necessary

Session B
U31 104 (1 unit)
MW 5:30-7:15pm

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 B
U31 225 (1 unit)
MW 5:30-7:15pm

DRAMA

IMPROVISATION FOR THE ACTOR

This course introduces students to the fundamentals of improvisation. Students are provided with the tools and techniques to develop their artistic voice, both individually and within an ensemble, through various theatre games, exercises, and techniques. Students will build self confidence, develop creativity, hone presentation skills, and have fun through working collaboratively in an ensemble. Both actors and non-actors are encouraged to take this class.

Prerequisite: None
EARTH AND PLANETARY SCIENCES

INTRODUCTION TO GLOBAL CLIMATE CHANGE IN THE 21ST CENTURY
Global climate and global climate change and their impacts on life and civilization. Integrated view of global climate and the diverse forces that can alter global climate. Historical and potential future consequences of global climate change on human life, our industrial civilization, and its sustainability.
**Prerequisite:** None

Session B
L15 233 (3 units)
MTuWThF 9:00a-10:45a

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 B
L11 1011 (3 units)
MTuWThF 9:00a-10:45a

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

ENGLISH COMPOSITION

PRINCIPLES OF WRITING
This course is about reading well and writing deliberately and sees those two acts as intimately related. Students will read as writers, studying the strategies that writers use to write persuasively, and practicing those strategies in their own writing. The course offers a method for close reading (based on finding meaningful patterns); it offers practice linking claims with evidence for those claims and it offers practice organizing papers using such skills as well-written summaries, theses, transitions, topic sentences, and paragraphs.
**Prerequisite:** None

Session B
U11 101 (3 units)
MTuWThF 3:00p-4:45p

ENTREPRENEURSHIP

ENTREPRENEURSHIP AND THE LIBERAL ARTS
It is a little known truth that more entrepreneurs come out of the Arts & Sciences than any other college. This course will begin by exploring why this is so, examining in particular the creative and innovative qualities developed in liberal arts that are crucial to the success of the entrepreneur. We will then move on to examine entrepreneurs in action, hearing from those in the field and reading of others, learning how the liberal arts proved instrumental in various ways to their development and ultimate success as entrepreneurs.
**Prerequisite:** None

Session B
L62 286 (3 units)
MTuWThF 3:30-5:15pm

HISTORY

INTRODUCTION TO WORLD HISTORY: THE SECOND WORLD WAR IN WORLD HISTORY
This course is an introduction to World History that uses World War II as a lens to examine the methodologies, approaches and sources historians employ to understand and analyze historical periods. The class will explore the global connections and interactions which characterize World History. The emphasis of this course will be on digging into topics traditionally neglected: the impact of the war on race, gender, family and children; daily life; and daily ethical decision making.
**Prerequisite:** None
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 B
L22 164 (3 units)
MTuWThF 9:00a-10:45a

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 B
U44 290 (3 units)
MTuWThF 8:30-10:15a

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 B
L24 1011 (3 units)
MTuWThF 11:00a-12:45p

FINITE MATHEMATICS: NUMBER THEORY, COMBINATORICS, AND GRAPHS
Intro to number theory, combinatorics, graph theory, and their applications. Methods of proof and practical applications: calendars, scheduling, communications, encryption, etc. This course is best suited for students who have no experience with calculus, trigonometry, or geometry.

Prerequisite: high school algebra

Session B
L24 2200 (3 units)
MTuWThF 11:00a-12:45p

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 or equivalent

Session B
L24 220 (3 units)
MTuWThF 11:00a-12:45p

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 or equivalent

Session B
L24 309 (3 units)
MTuWThF 11:00a-12:45p
MUSIC

HOW TO LISTEN TO POPULAR MUSIC
Learn to talk and write about popular music. We will consider all kinds of popular music: American and not, from the entire history of recorded sound. Issues of technology, the music industry, genre, musical form and style, gender, sexuality, and social class will all be considered. And we’ll learn to dance as well. Coursework includes listening to and reading about music, writing in various online-friendly formats, and making short videos and podcasts.
Prerequisite: None
Session B
U24 1061 (1 unit)
MW 5:30-7:00p

PHILOSOPHY

LOGIC AND CRITICAL ANALYSIS
This course is an introduction to first-order logic. Logic is the study of the formal properties of arguments. In this course we learn how to make arguments precise by formalizing sentences and applying methods of deductive reasoning to prove conclusions. We also discuss the relations between logical reasoning and informal reasoning, and logic and rationality. Why study logic? Logic gives you principles and techniques to distinguish good forms of reasoning, helps you to construct correct arguments, and (to some extent) think orderly. Additionally, logic is essential in other fields that you might also be interested in studying (e.g., mathematics, computer science, linguistics, and analytic philosophy). And of course, logic is a fun and interesting subject in its own right. The course presumes no background in philosophy or logic.
Prerequisite: None
Session B
L30 100G (3 units)
MTuWThF 9:00-10:45a

GREAT PHILOSOPHERS
In this course we focus on some of the most important texts in the history of Western philosophy in order to discuss a wide range of central philosophical problems. We typically consider, for example, the existence of God, the justification of claims to knowledge, and the requirements of a good human life, including the demands of morality. Among the philosophers most likely to be studied are Plato, Aristotle, Descartes, Hume, Kant, Marx, Nietzsche, and Wittgenstein. Our goal is not just to appreciate the genius of some great philosophers but also to grapple with the current philosophical problems they have bequeathed to us.
Prerequisite: None
Session B
L30 125C (3 units)
MTuWThF 1:00p-2:45p

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 B
L30 233F (3 units)
MTuWThF 11:00a-12:45p

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

INTERNATIONAL POLITICS
Globalization, the accelerating rate of interaction between people of different countries, creates a qualitative shift in the relationship between nation-states and national economies. Conflict and war is one form of international interaction. Movement of capital, goods, services, production, information, disease, environmental degradation, and people across national boundaries are other forms of international interactions. This course introduces the study of global political-economic relations. We focus upon building a toolkit that will help us understand the micro-foundations of the globalization of material and social relations.
Prerequisite: None
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 B
L32 103B (3 units)
MTuWThF 1:00-2:45p

Session B
L33 100B (3 units)
MTuWThF 11:00a-12:45p