Course Opportunities: Week of May 4, 2020

Table of Contents

Summer Session A: African American Studies  2
Summer Session A: Cognitive Science  4
Summer Session A: Earth & Planetary Science  5
Summer Session A: Molecular & Cell Biology  7
Summer Session A: Public Health  9
Summer Session C: African American Studies  10
Summer Session C: Cognitive Science  11
Summer Session C: Comparative Literature  12
Summer Session C: Integrative Biology  15
Summer Session C: Slavic Languages & Literatures  18
Summer Session C: Earth & Planetary Science  19
Summer Session D: African American Studies  21
Summer Session D: Cognitive Science  24
Summer Session D: Earth & Planetary Science  25
Summer Session D: Molecular & Cell Biology  26
Summer Session D: Psychology  27
Summer Session E: Molecular & Cell Biology  36
Summer English Language Studies: Sessions B, D & E  37
Summer 2020: Remote DES INV courses  39
Global Public Health Minor Summer 2020 Courses  40
Berkeley Geography: Summer 2020 Sessions A & D  41
Fall 2020 Big Ideas and Discovery Course websites are now live!  41
Fall 2020 Classics Lower Division L&S Breadth Courses  42
Fall 2020: ENRES 131 - Data, Environment and Society  42
Fall 2020: NWMEDIA 151AC  47
Summer 2020: BASE Business Program at Haas
Summer Session A: African American Studies

AAS 159.1: Flies in the Buttermilk: Food, Hunger, and Power in the African Diaspora

“Flies in the Buttermilk” draws from interdisciplinary approaches in African & African American Studies, Food Studies, Gender & Sexuality Studies, and Literary Studies to examine powerful ways that peoples of the African Diaspora have disrupted Eurocentric classifications of food & foodways across broad expanses of space and time. Employing Humanities-driven approaches that consider not only material, but also symbolic meanings of food as critical to our examinations, the course takes-up (to soundly clarify) topics such as, for instance, European appropriation & exploitation of African agricultural practices in the Atlantic World; trans-national affects of anti-black classism, racism, and sexism on heteronormative definitions of “women’s work” and “women’s labor” in domestic spaces; the, decidedly, uncomfortable beginnings of Soul Food in relation to its fraught status as a cuisine of “comfort” food; and, finally, the complex nature of both physical and metaphysical forms of hunger unique to global populations of African Diaspora peoples still ravenous for liberty during varied occurrences of long freedom struggles.
Summer Session A: Cognitive Science

COGSCI N1: Introduction to Cognitive Science - Class #: 13101
Prerequisite / Lower Division Course for CogSci
Meets Social & Behavioral Sciences, L&S Breadth
- 3 units
- Taught by Linda Isaac
- Summer Session A: May 26 - July 2
- TU, W, TH: 10:00 am - 12:29 pm

This course introduces the interdisciplinary field of cognitive science. Lectures and readings will survey research in such fields as artificial intelligence, psychology, linguistics, philosophy, and neuroscience, and will cover topics such as the nature of knowledge, thinking, remembering, vision, imagery, language, and consciousness. Sections will demonstrate some of the major methodologies. This course is a core prerequisite for the Cognitive Science major and therefore must be taken for a letter grade.

COGSCI 170: Brain Damage - Class #: 15239
Fulfills the Cognitive Neuroscience distribution or can count as an elective
- 3 units
- Taught by Linda Isaac
- Summer Session A: May 26 - July 2
- TU, W, TH: 1:30 pm - 3:59 pm

This course introduces students to the full range of brain damage causes, which are: traumatic brain injury (TBI) - civilian vs. military, chronic traumatic encephalopathy (CTE), stroke, tumors, infections, hypoxia, addiction, neurological, and congenital conditions. We understand how brain damage caused by each condition leads to localized and non-localized deficits in the key functions comprising cognition, emotion, physiology, social skills, behavior, and daily functioning capacity. Key co-occurring disorders are covered that present due to the fundamental brain damage causes.

COGSCI 182: The Cognitive Psychology of Concept and Idea Formation - Class #: 15309
Fulfills the Cognitive Psychology distribution or can count as an elective
- 3 units
- Instructor TBA
- Summer Session A: May 26 - July 2
- M, TU, W, TH: 4:30 pm - 6:29 pm
This class will explore cognitive psychology and some neurological processing related to cognition and the formation and use of “ideas” or “concepts.” We will discuss the modeling of idea and concept formation, the structures of memory, reasoning and problem solving, and meta-cognition, among others.

Summer Session A: Earth & Planetary Science

EPS 20 - Earthquakes in Your Backyard
EPS 80 - Environmental Earth Sciences

Course Description: This course focuses on the processes on and in the earth that shape the environment. Humanity's use of land and oceans is examined based on an understanding of these processes.

Summer Session A - Six-Week Session: May 26 - July 2
M W 1:00PM - 4:30PM | Course #12934 | 3 units
or
Summer Session D - Six-Week Session: July 6 - August 14
M W 1:00PM - 4:29PM | Course #12124 | 3 units

EPS N82 - Introduction to Oceans
Summer Session A: Molecular & Cell Biology

MCB W61 - Brain, Mind, and Behavior
Course Opportunities: Week of May 4, 2020

Berkeley Summer Sessions 2020

MOLECULAR AND CELL BIOLOGY - W61
Brain, Mind, and Behavior

Course Description: This course deals with the structure and function of the human nervous system, with an emphasis on how brain physiology and chemistry are related to human behavior. This is a comprehensive introduction to the exciting field of contemporary neuroscience for students of all backgrounds and interests, including those from the humanities and social sciences, as well as physical and biological sciences.

- Meets Biological Science, L&S Breadth Requirement
- Meets Social & Behavioral Sciences, L&S Breadth Requirement

Summer Session A
Six Weeks: May 26-July 2
ONLINE CLASS | Course #12275 | 3 units

SEE COURSE LISTING

summer.berkeley.edu
Summer Session A: Public Health

PH 118 - Nutrition in Developing Countries

We will focus on low- and middle-income countries because they experience the greatest burden of malnutrition, and because they face a unique context of limited financial and government resources. In this course, we will discuss the effects of nutrition throughout the lifecycle in pregnancy, infancy, childhood, and adulthood. We will focus on nutrition broadly including issues of undernutrition, micronutrient deficiencies, and obesity. We will also analyze and evaluate actions taken to ameliorate the major nutritional problems facing vulnerable populations in low- and middle-income countries.

It's a PH minor and major elective!

Session A
May 28-July 5
3 Units
M/W 8am-12pm
Dwinelle 79

PH 150D - Introduction to Health Policy and Management
Health policy and management applies concepts from economics, organization behavior, and political science to the structure, financing, and regulation of the public health and health care delivery systems. Introduction to Health Policy and Management (PH150D) is a three-unit breadth course that is designed to give students an overview of the health care system in the U.S. Students will also learn about current issues in U.S. health policy, health care reform efforts and proposals, and comparisons to other countries’ health care systems, and contemporary organizational challenges experienced by the U.S. healthcare system.

***

Dr. Robin Flagg has over 25 years of experience in health policy development and advocacy. She has worked with numerous organizations including the California Association of Public Hospitals (CAPH), the Centers for Medicare and Medicaid Services (CMS) in the US Department of Health and Human Services, and Kaiser Permanente. Additionally, Dr. Flagg was the Director of Health Policy at the California Medical Association (CMA). Dr. Flagg’s research interests include state policymaking, health care politics, and senior health care services. Dr. Flagg serves on the Board of On Lock, Inc. (a PACE plan). Dr. Flagg received both her PhD in Health Services and Policy Analysis and her MPH in Health Policy and Administration from UC Berkeley. Her BA was in Art History from Williams College. Following her BA, she worked for 3 years with US Peace Corps in Nepal.

**Summer Session C: African American Studies**

AAS W111 – Race, Class and Gender
Course Opportunities: Week of May 4, 2020

Berkeley SUMMER SESSIONS

RACE, CLASS AND GENDER

AAS W111
Online Course | Class #11922 | Session C
Instructor: Stephen Small

A focus on patterns of globalization, migration, and race/ethnic relations with regard to African Americans, Mexican Americans, and Asian Americans in the 1890s and 1990s. Key aspects like economics, politics, gender, and culture are examined. This course is web-based.

Summer Session C: Cognitive Science

COGSCI 131: Computational Models of Cognition - Class #: 13103
Fulfills the Computational Modeling distribution or can count as an elective

- 4 units
- Instructor TBA
- Summer Session C: June 22 - August 14
- M, TU, W: 3:30 pm - 5:29 pm
This course will provide advanced students in cognitive science and computer science with the skills to develop computational models of human cognition, giving insight into how people solve challenging computational problems, as well as how to bring computers closer to human performance. The course will explore three ways in which researchers have attempted to formalize cognition -- symbolic approaches, neural networks, and probability and statistics -- considering the strengths and weaknesses of each.

Summer Session C: Comparative Literature

Com Lit 156AC – Sounding American
Course Opportunities: Week of May 4, 2020

**Comparative Literature Berkeley Summer Sessions 2020**

**Sounding American:**

**Literature, Music, Technology and Race**

Comparative Literature 156AC

**Course Description:** What is meant when we say someone or something “sounds American”? Can a person sound like a certain gender, social class, sexuality, or race? How would we possibly define that sound? And what might it mean to think of a culture by the ways it sounds and listens, instead of how it looks or sees? This course will explore these questions and others by studying podcasts, poems, songs, novels, and the changing forms of sonic technologies like microphones, radios, MP3s, turntables, and more.

**ONLINE COURSE – FULFILLS AMERICAN CULTURES (AC) REQUIREMENT**

**Summer Session C - Eight-Week Session: June 22 - August 14**

**Online Course**

Course #13018 | 4 units

summer.berkeley.edu

Com Lit W60AC – Boroughs and Barrios
Course Opportunities: Week of May 4, 2020

Comparative Literature
Berkeley Summer Sessions 2020

Boroughs and Barrios
Moving in and through NYC & LA
Com Lit W60AC

Course Description: Who comes to the American city, and why? How do visitors, residents, and migrants negotiate and move through “The Big Apple” and “The City of Angels,” reimagining urban life in the process? In this online course, we will trace the crises of immobility that mark the histories of New York City and Los Angeles by exploring their representations in writing, music, maps, photography, and film.

Session C: 06/22/20 - 8/14/20
Fulfills the AC Requirement
Online course that can be taken from anywhere in the world!

Instructor: Karina Palau

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Summer Session C: Integrative Biology

IB 141 - Human Genetics

Course Description: Principles of inheritance, especially as applied to human traits, including molecular aspects of genetics, the genetic constitutions of populations, and questions of heredity/environment.

Session C - Eight-Week Session: June 22-August 14
M, TU, W, TH | 10:00 - 11:30 a.m. | Course #12206 | 3 units

See Course Listing

summer.berkeley.edu
IB 41 - Marine Mammals

Course Description: A survey of marine mammal evolution, biology, behavior, ecology, and politics with a concentration on those species found in the North Pacific. Coverage would include: origin and evolution of cetaceans, pinnipeds, sirenians, and sea otters; basic biology and anatomy of marine mammal groups, and North Pacific species in particular; ecological interactions and role in nearshore and pelagic marine communities; and interactions between humans and marine mammals.

Session C - Eight-Week Session: June 22-August 14
M, W | 4:00 - 6:00 p.m. | Course #12191 | 2 units

IB 31 - Ecology and Evolution of Animal Behavior
Ecology and Evolution of Animal Behavior
INTEGRATIVE BIOLOGY - 31

Course Description: Principles of evolution biology as they relate to animal behavior and behavioral ecology with broad coverage of animal groups. Special attention will be paid to the emerging discipline of behavioral ecology.

- Meets Biological Science, L&S Breadth

Session C - Eight-Week Session: June 22-August 14
M, W | 10:00 a.m. - 12:00 p.m. | Course #12741 | 3 units

SEE COURSE LISTING
summer.berkeley.edu

IB 131 - General Human Anatomy
Course Opportunities: Week of May 4, 2020

**Summer Session C: Slavic Languages & Literatures**

**Slavic 50 - Intro to Russian/East European/Eurasian Cultures**

**Course Description:** The functional anatomy of the human body as revealed by gross and microscopic examination.
- Meets Biological Science, L&S Breadth

**Session C - Eight-Week Session: June 22-August 14**
M, W, F | 12:00 - 2:00 p.m. | Course #12202 | 3 units

SEE COURSE LISTING

summer.berkeley.edu
Summer Session C: Earth & Planetary Science

EPS 3 – The Water Planet
EPS W12 – The Planets
Summer Session D: African American Studies

AAS 125AC - The History of The Modern Civil Rights Movement
The objective of this course is to examine the modern Civil Rights Movement. As traditionally understood, this period began with the May 17, 1954, "Brown vs. Board of Education" Supreme Court decision and ended with the passage of the Voting Rights Act of 1965. This course will expand this time frame and seek to place this movement in the context of global developments and the broad sweep of United States History. Assigned readings consist of historical and autobiographical texts. Lectures will contextualize the readings by placing the material and its significance within the overall history and culture of Americans. Visual media will augment the lectures.
AAS 159. 2 - Reading and Writing A Black Feminist Creative Practice of Care

Reading and Writing a Black Feminist Creative Practice of Care
Course Opportunities: Week of May 4, 2020

Summer Session D: Cognitive Science

COGSCI 180: Mind, Brain, and Identity - Class #: 15308

Fulfills the Philosophy distribution or can count as an elective
Meets Philosophy & Values, L&S Breadth

- 3 units
Course Opportunities: Week of May 4, 2020

- Instructor TBA
- Summer Session D: July 6 - August 14
- M, TU, W, TH: 12:00 pm - 1:59 pm

Do you have a self or are you one? How is the self related to brain structure and function? Is the self, for example, identical to some part of the brain or part of the brain’s function? Can you damage the self by damaging the brain? In this course we will look at these questions from conceptual, psychological, and neuroscientific perspectives. We will study both normal and injured brains to help shed light on what is a deeply philosophical and personal issue: What is the human self. We will read various papers pertaining to these issues as well as the books listed under required reading.

**COGSCI 181: The Cognitive Unconscious - Class #: 15310**

*Fulfills the Philosophy or Society, Culture, and Cognition distribution, or can count as an elective*

*Meets Philosophy & Values, L&S Breadth*

- 3 units
- Instructor TBA
- Summer Session D: July 6 - August 14
- M, TU, W, TH: 4:00 pm - 5:59 pm

This class is on the cognitive unconsciousness. This is the unconscious mind from a cognitive science point of view rather than one from psychoanalysis (though we will briefly touch on the psychoanalytic notions of the unconscious to clarify the distinction). The basic guide will be asking whether there is explanatory value to explaining human behavior with mental states or events that are not conscious to the person who has them. We say, for example, that a person flinched because they felt pain. Pain is a mental state that can explain the behavior (the flinch) of the person. Are there good reasons to think that some behaviors are explained by unconscious mental states?

**Summer Session D: Earth & Planetary Science**

**EPS 10 – Earth’s Greatest Volcanic Eruptions**
Summer Session D: Molecular & Cell Biology

MCB 63 - Introduction to Functional Neuroanatomy
Course Opportunities: Week of May 4, 2020

Berkeley Summer Sessions 2020

Introduction to Functional Neuroanatomy
MOLECULAR AND CELL BIOLOGY - 63

Course Description: This course emphasizes beginning anatomy of the brain and spinal cord to individuals interested in understanding the dynamics of motor and sensory functions in the human body. Students in the Departments of Education, Psychology, and Integrative Biology, as well as students interested in medicine and the life sciences, are especially encouraged to attend.

- Meets Biological Science, L&S Breadth

Session D - Six-Week Session: July 6-August 14
M, TU, W | 10:00 a.m. - 12:00 p.m. | Course #12276 | 3 units

SEE COURSE LISTING

summer.berkeley.edu

Summer Session D: Psychology

Psych 3 – Introduction to How the Brain Works

All Psych summer courses will now be online. Visit the academic guide for our course offerings!
Course Opportunities: Week of May 4, 2020

Psych 4 – Emotional Intelligence

All Psych summer courses will now be online. Visit the academic guide for our course offerings!
Course Opportunities: Week of May 4, 2020

Psych 6 – Stress and Coping

All Psych summer courses will now be online. Visit the [academic guide](#) for our course offerings!
Psych 136 – Human Sexuality

All Psych summer courses will now be online. Visit the academic guide for our course offerings!
Psych 139 – Case Studies in Clinical Psych

All Psych summer courses will now be online. Visit the academic guide for our course offerings!
Psych 166AC – Cultural Psych

All Psych summer courses will now be online. Visit the academic guide for our course offerings!
Psych N180 – Industrial-Organizational Psychology

All Psych summer courses will now be online. Visit the academic guide for our course offerings!
Psych 137 – Mind-Body and Health

All Psych summer courses will now be online. Visit the academic guide for our course offerings!
Psych 138 – Global Mental Health

All Psych summer courses will now be online. Visit the academic guide for our course offerings!
Summer Session E: Molecular & Cell Biology

MCB N184 - Intro to CRISPR: From Basic Biology to Genome Editing Technology
Intro to CRISPR: From Basic Biology to Genome Editing Technology

MOLECULAR AND CELL BIOLOGY - N184

Course Description: This three-week course will address topics in genome editing and CRISPR-Cas9 research, including basic and enhanced CRISPR methods, cellular repair mechanisms, regulation of gene expression, bioinformatics, applications to various organisms, and bioethics. Students will learn from a collection of local experts about ongoing campus research, and gain the background knowledge to understand current publications and applications of genome editing.

Session E - Three-Week Session: July 27-August 14
M, TU, W, TH | 1:00 - 2:00 p.m. | Course #12829 | 1 unit

Summer English Language Studies: Sessions B, D & E
2020 Summer English Language Courses for Multilingual Students
Refine your academic English! 
Earn UC Berkeley credit! 
Enroll on CalCentral. For more information, go to [http://summerenglish.berkeley.edu](http://summerenglish.berkeley.edu)

**ColWrit Online Courses** 
2 units, P/NP, July 6 - Aug 14 
Taught entirely over the internet.  
- W3A: Academic Writing  
- W3B: Business English: Oral Communication  
- W3D: Introduction to the U.S. Legal System  
- W3E: Legal English: Listening and Speaking  
- W3G: Grammar and Vocabulary  
- W3I: Introduction to Technical Writing  
- W200: Writing for Academic Publication*  
  - * meets Session B: June 8 - Aug 14

**ColWrit 5 and 9** 
3 units, graded or P/NP, July 6 to Aug 14 
Friday/weekend fieldwork projects  
- 5C: Film  
- 5D: Literature  
- 53: Popular Music  
- 5F: International Human Rights  
- 5K: Media  
- 5N: Designing Public Spaces  
- 5P: Makerspace Creativity: Craft and Technology  
- 9A: Academic Research  
- 9C: Academic Writing  
- 9E: Business English  
- 9I: Conflict Resolution  
- 9J: Academic Language and Writing Style  
- 9N: Legal English and U.S. Law  
- 9O: Legal Writing  
- 9R: Academic and Public Speaking  
- 9S: Pronunciation  
- 9V: Science and Engineering  
- 9Y: Creative Writing

**ColWrit 6**
2 units, P/NP, July 27 - Aug 14

- 6A: Academic Speaking
- 6B: Academic Vocabulary
- 6C: Business Vocabulary
- 6E: Grammar and Editing
- 6G: Writing for Digital Media
- 6H: Writing Creative Non-Fiction
- 6I: English through Conflict Resolution
- 6J: Academic Test Preparation
- 6K: Academic Reading and Writing
- 6L: Job Searching and Networking
- 6M: Graduate School Admissions & Expectations
- 6N: Art & Design
- 6P: Pronunciation
- 6Q: Alternative Dispute Resolution
- 6R: Speaking through Performance

**Summer 2020: Remote DES INV courses**

All UC Berkeley summer courses will be taught remotely this summer. We are happy to confirm that we can offer all four of our scheduled DES INV courses remotely. Now you can learn about design in the comfort of your own home! The courses we are offering are below; learn more about them and get registration info [here](#).

- DES INV 190-10 Design, Cybersecurity & Mobility

If you're wondering what courses will be offered in Jacobs Hall in fall 2020, stay tuned for the [Jacobs course list](#) to be updated early next week. In the time being you can look up courses in the [Class Schedule](#).
Global Public Health Minor Summer 2020 Courses

UC Berkeley Summer 2020
Global Public Health Minor or Certificate Courses

We are currently in the midst of a global public health emergency. At least 152 countries have confirmed cases of COVID-19. It has never been more apparent than now that careers and expertise in global public health settings are crucial to the health and well-being of our communities.

The UC Berkeley undergraduate summer minor/certificate program in Global Public Health is alive and well and adapting to this changing global health environment. All summer minors/certificate courses for sessions A and D will be offered remotely. There may be opportunities for students to attend some classes on campus in session D, but this is currently unknown. All courses will have synchronous (live/real-time instruction) during the scheduled time in the course catalog. There may also be asynchronous (offline instruction) components. The summer minor/certificate can be completed in one or two summers.

The Global Public Health minor is now offered to UC Berkeley Public Health majors. We are also excited to share that all global public health minor/certificate courses will incorporate COVID-19 or pandemic-related content.

Please visit our website, https://publichealth.berkeley.edu/academics/undergraduate/global-public-health/, or contact Program Advisors, Kimberly Henderson and Patricia Cruz, at sphug@berkeley.edu, for additional information.

There has never been a better time to get involved in global public health, so please join us!

**Summer Session A (May 26 - July 2)**
- PBHLTH N112 Global Health: A Multidisciplinary Examination
  - Lecture: T, W, TH 2pm-4pm
  - Discussion: T, W, TH 4pm-6pm

**Summer Session D (July 6 - August 14)**
- PBHLTH 115 Introduction to Global Health Equity
  - Lecture: T, TH 12pm-2pm
  - Discussion: F 12pm-4pm

- PBHLTH 118 Nutrition in Developing Countries
  - Lecture: M, W 9am-1pm

- PBHLTH 150B Introduction to Environmental Health Science
  - Lecture: M, T, W, TH 12pm-2pm

- PBHLTH 150D Introduction to Health Policy & Management
  - Lecture: M, T, W, TH 10am-12pm
  - Discussion: F 10am-12pm

- PBHLTH 196 War & Public Health
  - Lecture: T, TH 4pm-7pm

Monday (M), Tuesday (T), Wednesday (W), Thursday (TH), Friday (F)

Please visit our website,
https://publichealth.berkeley.edu/academics/undergraduate/global-public-health/
Berkeley Geography: Summer 2020 Sessions A & D

**Session A (May 26th - July 2nd)**
- GEOG N20: Globalization
- GEOG N50AC: California
- GEOG N130: Food and the Environment

**Session D (July 6th - August 14th)**
- GEOG N4: World Peoples and Cultural Environments
- GEOG 31: Justice, Nature, and the Geographies of Identity
- GEOG 32: Global Geographies of Imperialism
- GEOG 70AC: The Urban Experience
- GEOG 107: Waste Matters: Exploring the Abject, Discarded and Disposable
- GEOG 108: Geographies of Energy: The Rise and Fall of the Fossil Fuel Economy
- GEOG 114: Thinking Globally, Acting Regionally: Geographies of Climate Change
- GEOG 138: Global Environmental Politics

For more information, contact Berkeley Geography: [https://geography.berkeley.edu](https://geography.berkeley.edu)

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For more information, contact Berkeley Geography: [https://geography.berkeley.edu](https://geography.berkeley.edu)

**Fall 2020 Big Ideas and Discovery Course websites are now live!**
Course Opportunities: Week of May 4, 2020

Please visit L&S Big Ideas Courses and L&S Discovery Courses - Fall 2020 for more course information!

**Fall 2020 Classics Lower Division L&S Breadth Courses**

- **CLASSICS 10A (crse# 21383)** - Intro to Greek Civilization
  - Fulfills the L&S breadth requirements in Arts & Literature, Historical Studies or Philosophy & Values.

- **CLASSICS 17A (crse# 21372)** - Intro to the Archaeology of the Greek World
  - Fulfills the L&S breadth requirements in Arts & Literature or Historical Studies.

- **CLASSICS 36 (crse# 25818)** - Greek Philosophy
  - Fulfills the L&S breadth requirements in Historical Studies or Philosophy & Values

- **CLASSICS R44 (crse# 21374)** - Roots of Western Civilization
  - Fulfills the L & S breadth requirement in Arts & Literature, Historical Studies or Social & Behavioral Sciences.
  - Fulfills Reading and Composition Requirement either A or B

**Fall 2020: ENRES 131 - Data, Environment and Society**
Data, Environment and Society
Fall, 2020
Energy and Resources Group

ENERES 131
Professor Duncan Callaway (dcal@berkeley.edu)

This course will teach students to build, estimate and interpret models that describe phenomena in the broad area of energy and environmental decision-making. Students leave the course as both critical consumers and responsible producers of data-driven analysis.

The effort will be divided between (i) learning a suite of data-driven modeling and prediction tools (including linear model selection methods, classification and regression trees and support vector machines) (ii) building programming and computing expertise and (iii) developing capacity to formulate and answer resource allocation questions within energy and environment contexts.

We will work with Python, and students must have taken Data 8 before enrolling. The course is designed to complement and reinforce Berkeley's data science curriculum, in particular Data 100.

The course can be used to satisfy the upper division domain emphasis for the Data Science major and minor, the engineering elective for Energy Engineering, and the upper division requirement for Energy and Resources Group minor.

Lecture (#27412) TT 9:30 – 11am

There will be two options for lab section, timing to be announced.

Required Prerequisites: Experience with statistics and computing in Python (CS C8/IS C8/ Stat C8 satisfies this) and college calculus. Direct questions to the instructor.

Recommended Preparation: An introductory computer programming course (Computer Science 61A or Computer Science 88) and Linear Algebra (Mathematics 54, EE16A, or Statistics 89A)

FOR MORE INFORMATION CONTACT: ENERGY AND RESOURCES GROUP
ergdeskb@berkeley.edu * 510-642-1640 * 310 Barrows Hall
ER 131: Data, Environment and Society

Instructor: Duncan Callaway, dcallaway@berkeley.edu

Fall 2020
4.0 Units

Lecture time and location: Tu/Th 9:30-11:00am, Barrows 60

Lab time and location: TBD
Office hours: TBD

Course Description

This course will teach students to build, estimate and interpret models that describe phenomena in the broad area of energy and environmental decision-making. The effort will be divided between (i) learning a suite of data-driven modeling approaches, (ii) building the programming and computing tools to use those models and (iii) developing the expertise to formulate questions that are appropriate for available data and models. Our goal is that students will leave the course as both critical consumers and responsible producers of data driven analysis.

We will work in Python in this course, and students must have taken Data 8 before enrolling. The course is designed to complement and reinforce Berkeley’s data science curriculum, in particular Data 100 (though D100 is not a prerequisite). Whereas Data 100 focuses on a very broad set of data science tools including modeling, web technologies, working with text, databases and statistical inference, this course focuses more on how to use prediction methods as decision-making tools in energy and environment contexts.

This is a four unit course, with three hours of lecture and two hours of lab section each week. Lectures will focus on theoretical and conceptual material but also introduce the programming structures required to use the material. Labs will be computer working sessions with a GSI and lab helpers available to work through weekly lab exercises.

Prerequisites

- (required) Foundations of Data Science (CS/INFO/STAT C8)
- (recommended) Computing: An introductory programming course (CS61A or CS88).
- Math:
  - (required) High school or college calculus.
  - (recommended) Linear Algebra (Math 54, EE 16a, or Stat89a).
Satisfaction of degree requirements

This course can be used to satisfy the following requirements.

- Upper division domain emphasis for Data Science major
- Engineering Elective for Energy Engineering
- Upper division requirement for Energy and Resources Group minor

Resources

- You will need your own computer, but virtually any operating system will do (OSX, Windows, Linux, Chromebook).
- We will draw some material from Berkeley’s Data 100 course book, freely available here: https://www.textbook.ds100.org
- We will draw material from the excellent text book, Introduction to Statistical Learning, available in both print and pdf form.
- We will do a variety of readings from peer reviewed journals and popular press.
- Lectures, readings, and solutions will all be available on the course github site: https://github.com/duncancallaway/ER131_2020.
- You’ll complete all HW and lab assignments using Python, within Jupyter notebooks hosted on datahub.berkeley.edu.
- Links for assignments will be posted on bCourses. You’ll submit work there, too.

Assessment

The course will have weekly labs and homework assignments, a mid-term and a final project. Grading will be as follows:

- Homework: 20%  
  - There will be ten. We drop the lowest grade.  
  - HW will be released on Thursdays and due the following Thursday.
- Lab assignments: 15%  
  - There will be nine. We drop the lowest grade.  
  - Released on Mondays and due the following Monday.  
  - Attendance is 40% of lab grade, completing the lab is 60% of the grade.  
  - Grading will focus on completeness rather than correctness.
- Mid-term: 25% (November 19, in class)
- Final poster: 10% (the poster session will be December 17, 3-6pm)
- Final project: 30% (due December 18 at 6am)
Late policy:

- You may request up to two extensions of two days over the course of the semester. You may distribute those extensions as you wish over homework and lab assignments. Otherwise, we will not accept late homework and labs. Coordinate extension requests with the GSI.

- The poster must be presented during the poster session to receive credit.

- For the final project, we drop 10 points out of 100 for each day late, or roughly a full letter grade. Projects submitted after 11:59 am on December 18, 2020 will not receive credit.

Working in groups

Homework and labs

You are encouraged to learn from one another by brainstorming solution strategies. However the work you submit must clearly be your own. We will give zero credit for assignment submissions that are identical to one another. If you work with others, be sure to finish assignments on your own. Comments and markdown cells must clearly be your own.

Final project

You must work in groups of 2-3 for the final project. The final project writeup must include a statement describing each team member’s contributions and a statement that all team members agreed the division of labor was equitable.

## Schedule

<table>
<thead>
<tr>
<th>Session</th>
<th>Day / Week</th>
<th>Topic</th>
<th>Methods Reading</th>
<th>Domain Reading</th>
<th>Homework assigned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture 1</td>
<td>8/29/19</td>
<td>Course introduction</td>
<td></td>
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<tr>
<td>Lab 1</td>
<td>Week of 9/2/19</td>
<td>No lab – week of labor day</td>
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<tr>
<td>Lecture 2</td>
<td>9/3/19</td>
<td>Data design</td>
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<tr>
<td>Lecture 3</td>
<td>9/5/19</td>
<td>Pandas, variable types and file types</td>
<td>Blei and Smyth</td>
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<tr>
<td>Lab 2</td>
<td>Week of 9/9/19</td>
<td>Answer HW1 questions; Pandas</td>
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<tr>
<td>Lecture 4</td>
<td>9/10/19</td>
<td>Pandas, ctd, and data for HW2 (PM2.5)</td>
<td>Kleinberg et al; Athey.</td>
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<tr>
<td>Lecture 5</td>
<td>9/12/19</td>
<td>Merge, groupby, pivot</td>
<td>DS100 Ch4, 5</td>
<td>HW2: Pandas, PM2.5 and fires</td>
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<tr>
<td>Lab 3</td>
<td>Week of 9/16/19</td>
<td>Answer HW questions; Exploratory data analysis</td>
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<tr>
<td>Lecture 6</td>
<td>9/17/19</td>
<td>Exploratory data analysis</td>
<td>Hino et al; Pelletier et al</td>
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<tr>
<td>Lecture 7</td>
<td>9/19/19</td>
<td>Visualization</td>
<td>DS100 Ch6</td>
<td>HW3: EDA; Wildfire ignitions</td>
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<tr>
<td>Lab 4</td>
<td>Week of 9/23/19</td>
<td>Answer HW questions, visualization</td>
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<td>Lecture 8</td>
<td>9/24/19</td>
<td>Intro to modelling, review regression</td>
<td>DS100 Ch 10; ISLR Ch 2</td>
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<tr>
<td>Lecture 9</td>
<td>9/26/19</td>
<td>Regression ctd, confidence intervals</td>
<td>ISLR 3.1</td>
<td>HW4: Visualization; renewable energy data</td>
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<tr>
<td>Lab 5</td>
<td>Week of 9/30/19</td>
<td>Basic modeling, KNN</td>
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<tr>
<td>Lecture 10</td>
<td>10/1/19</td>
<td>Multiple Regression; Land Use Regression</td>
<td>ISLR 3.2</td>
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<tr>
<td>Lecture 11</td>
<td>10/3/19</td>
<td>Regression wrapup, KNN</td>
<td>ISLR 3.3</td>
<td>HW5: regression</td>
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</table>
Course Opportunities: Week of May 4, 2020

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<thead>
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<tbody>
<tr>
<td><strong>Session</strong></td>
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<tr>
<td>Lab 6</td>
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<tr>
<td>Lecture 12</td>
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<td>Lecture 13</td>
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<td>Lab 7</td>
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<td>Lecture 19</td>
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<tr>
<td>Lecture 20</td>
</tr>
<tr>
<td>Lab 11</td>
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<thead>
<tr>
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<tbody>
<tr>
<td><strong>Session</strong></td>
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<tr>
<td>Lecture 21</td>
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<td>Lecture 22</td>
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<td>Lab 12</td>
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<td>Lecture 25</td>
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<tr>
<td>Lecture 26</td>
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<tr>
<td>Lecture 27</td>
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Fall 2020: NWMEDIA 151AC

NWMEDIA 151AC
Transforming Tech: Issues and Interventions in STEM and Silicon Valley
Abigail De Kosnik
In this course, we will study major tech industry controversies and heavily criticized tech products, policies, and effects, including technologies used at the U.S.-Mexico border, social media platforms’ spread of disinformation and fake news, racial bias in algorithms, and internet trolling and harassment. We will also examine tech companies’ long-running tendency to exclude women and non-Asian minorities, and how tech workers have occasionally come under fire for the industry’s harms. Students will be required to brainstorm and design their own interventions into the workings of the tech sector to make it more inclusive, equitable, and diverse.

*This course fulfills the American Cultures requirement, the Electrical Engineering and Computer Science Ethics requirement, and the Media Studies Requirement Group B: Specialization in a Medium.*

**Summer 2020: BASE Business Program at Haas**

*July 6 - August 14, 2020*

If you are free this July and August we have a unique summer business program at Haas. *We will facilitate the Haas BASE Summer Program remotely in 2020, including instruction, career workshops and company events.* We have reduced the cost of the program from $10,000 to $8,500 for 2020. Partial financial aid may be available.

If you are free this summer here is an opportunity to complement your Cal degree with a rigorous summer business program and add the words "Haas" and "Business" to your resume.

The Haas School of Business invites you to consider the **BASE Summer Program (Business for Arts, Sciences and Engineering)**. BASE is a six-week business boot camp that enables non-business majors and recent graduates to take business courses while earning full academic credit. Some former BASE students have gone on to earn MBA degrees, while others have accepted jobs in marketing, product development, consulting, financial services, and technology. **BASE students receive many benefits, including custom workshops, company visits, lunches, small class size with top professors** and Haas Alumni Network benefits.
The ideal participant of the BASE Program is an undergraduate student majoring in liberal arts, sciences or engineering. BASE is the only premier business summer program or institute where students can earn units.

**Partial Financial Aid for Berkeley Students**
Some UC Berkeley students are eligible for partial summer financial aid which can partially cover the cost of the program. More information is here (BASE courses are 9 semester units in Summer Session D): [http://financialaid.berkeley.edu/summer-aid](http://financialaid.berkeley.edu/summer-aid)

**Application Process**
We encourage you to apply as soon as possible given the popularity of the Program in the past 22 years. There is no application fee.

Check out the BASE website if you have any questions. We look forward to reading your application!