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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 159.3 - From Be-Bop to Hip Hop
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 June 29, 2020

Summer Session D: Cognitive Science

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
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: Geography

GEOG 31: Global Geographies of Imperialism
GLOBAL GEOGRAPHIES OF IMPERIALISM

SUMMER SESSION D (JULY 6 – AUGUST 14)

Focusing on the twentieth century into the present moment, this survey course explores global geographies of imperialism and hegemonic transitions. What drives imperialism? Are militarism and war inherent to global capitalism? How do historical relations of colonialism relate to uneven capitalist development today at the global scale? The course introduces key theories and debates on the topic of imperialism and explores the themes of race, gender, territory, development, resource extraction, finance, and militarism.

GEOG 32 (3 Credits)
Instructor: Bridget Martin (Martb244@berkeley.edu)
Times: Tues, Weds, Thurs 9:00 – 11:30 (Most lectures are asynchronously provided.
Synchronous meeting times will be determined after the first class meeting.)

All students are welcome! Contact the instructor for details.

GEOG 138: Global Environmental Politics
Geography 138: Global Environmental Politics

July 6 – August 14: TU/W/TH 9:00 am - 11:30 am
Instructor: Erin Torkelson

- Read texts from scholars and activists writing from within environmental struggles around the globe.
- Examine the colonial, imperial and capitalist circuits of global environmentalism.
- Analyze how post/de-colonial struggles politicize relations among environmental resources, rights and cultural identities.

GEOG 170: Walkers in the City: Landscape, Mobility and Everyday Life
Walkers in the City: Landscape, Mobility, and Everyday Life

Geography 170
Instructor: Dr. Peter Ekman
CCN: 15722
Summer Session D (from July 6)
TTh 3:00-5:30

Thinkers across the disciplines address themselves to matters of embodiment, materiality, and mobility. There is a long and varied tradition concerned with how these matters intersect questions of urban landscape, laced with openings and leads onto urban geographies that have yet to be written. This course invites students to reassess walking as a way of knowing, and to recommit to what Walter Benjamin, wandering through Paris and Berlin a century ago, semi-famously called “botanizing on the asphalt.”

Throughout, we consider how the very ordinariness of walking can update or undo some of the major categories humanists, social scientists, and practitioners use to make sense of urban space, place, politics, power, economy, culture, and the axes of organized difference that freight and fracture them. How to adjust our sense of landscape’s materiality given that every observer, lay or expert, is in some sense on the go? How to interpret the interactions between walking bodies and those urban spaces built to accommodate ever more mechanized technologies of getting around? Between organic and inorganic matter more generally? Matter and mind? Methodologically speaking — and critically reprising older notions of the transect, the cross-section, and the regional survey — how might a concern with pedestrian and other mobilities accompany urban and spatial theory? What new forms of engagement might it allow with the archives of urban history?

This course will be run as a seminar, punctuated once a week by lectures. As befits the subject matter, it may also include one or more exercises in self-directed field study — solitary walks through the “socially distanced” city — with brief but closely observed essays the result. Students will also read and react to one another’s writing.

Summer Session D: History

N100.002 Whose Rights? Citizens and Citizenship in American History**
What does it mean to be an American citizen? What are U.S. citizenship rights? Do citizenship rights mostly serve to expand access to the public sphere and the political economy among diverse citizens or to restrict access on the basis of nationality and immigrant status? And how have these questions changed over the nearly two and a half centuries-long existence of the American Republic?

**N100.003 History of Silicon Valley**
Silicon Valley: the place where our quotidian is manufactured. The Hollywood of the digital, it’s the literal ground upon which new forms of relating, learning, and consuming are invented, tested, codified, packaged, and disseminated until we’ve reconfigured our “natural” and given environment again and again.

**116D 20th Century China**
This course examines the origins of present-day China in its twentieth-century past. China’s most recent century was a period of dramatic upheaval and fundamental transformation, the outcomes of which were far from inevitable.

**160 International Economy of the 20th Century**
This course looks at the massive economic and social changes that shaped the 20th century. As a compass that guides us through the century we will use the work of the Austro-Hungarian economic historian Karl Polanyi who in mid-century published the seminal book The Great Transformation.

*Course satisfies American Cultures requirements
** 2-unit course. Does NOT satisfy a history major requirement.

**Summer Session D: Molecular & Cell Biology**
**MCB 63 - Introduction to Functional Neuroanatomy**
Course Opportunities: Week of June 29, 2020

**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**

**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!
Psych 4 – Emotional Intelligence

All Psych summer courses will now be online. Visit the [academic guide](#) for our course offerings!
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!
Session E
July 27 - August 14

Psychology 138
Global Mental Health

Class Number 13087
M, TU, W, TH, F 1:00 pm - 4:59 pm
Mulford 159
Prof. Nancy Liu

Global mental health seeks to alleviate suffering caused by mental disorders globally. Although most of the world lives in low-and-middle income countries, the majority of mental health resources are concentrated in high-income countries. Therefore, we focus on the mental health burden in low-resource settings. Through primary articles and recent chapters, this course integrates the scientific evidence, cultural and contextual nuances, and interdisciplinary approaches of global mental health.
Summer Session D: Rhetoric

"Fundamentals of Public Speaking”— Online, Summer Session D

Rhetoric 2 | D | CCN: 12518
Instructor: Michael Dalebout
M/W/F 1:00pm-3:30pm | 4 Units

This course is an online workshop in which students cultivate their own speaking style while developing strengths in skillful communication with diverse audiences in a variety of situations through multiple media. During the six-week term, students will engage in activities designed to foster their skills in written self-presentation, online visual and audio performance, and face-to-face encounters via streaming and collaborative technologies. By interacting individuals and groups online, students will exercise their ability to communicate well within the online public sphere, using digital technologies to exercise techniques that translate to in-person, real world success, as well.

To promote the students’ exploration of themselves as public figures, we will explore the views of others who have considered the question of public speech, and who have engaged in public performance in a variety of contexts. The goal of this course is that students who begin with solid English reading and speaking comprehension skills will complete the course with 1) an enhanced capacity to successfully represent themselves and their perspectives in a variety of social circumstances, and 2) a refined sensitivity to how their self-presentation affects the lives of those around them.

This class will be taught via SYNCHRONOUS REMOTE INSTRUCTION.**

**Time conflicts are not allowed for this class.**
“Rhetoric of New Media”— Online, Summer Session D  
Rhetoric 114 | D | CCN: 15203  
Instructor: Ryan Ikeda  
Tu/W/Th 10:00am-12:30pm | 4 Units

This course explores the effects of digital technology on human expression.

Our first approach examines our daily encounters with born-digital artifacts, such as memes, GIFs, tweets, snaps, emoji, and new media works of art. Our second approach investigates hidden, physical infrastructure that make new media possible, for example, the undersea fiber optic cable network or cloud storage facilities that connect, protect, and enable digital culture. Lastly, we will read essays on digital culture written by a few of its leading thinkers.

Rhetoric of New Media directs our reading, writing, speaking, and thinking practices toward the analysis of digital culture through a series of projects—a presentation, a seminar discussion, and an essay—through the following questions:

What aspects of digital culture do I find most compelling?  
- How does digital technology change the way I know myself?  
- In what ways do new media change the pace and scale of my social interaction?

At the end of the semester, students will have cultivated a strong foundation for the analytical and theoretical study of new media applicable across disciplines, including but not limited to CS, EECS, Cognitive Science, MCB, Rhetoric, Film/Media, Media Studies, English, Philosophy, and many other majors and minors.

*This course satisfies the History & Theory concentration in the Rhetoric major

This class will be taught via SYNCHRONOUS REMOTE INSTRUCTION.**

**Time conflicts are allowed for this class.**

“Rhetoric, Culture and Society”— Online, Summer Session D  
Rhetoric 116 | D | CCN: 15205  
Instructor: Tim Wyman-McCarthy  
M/W/F 10:00am-12:30pm | 4 Units

The Bard, like Elvis, can leave the building but not our lives. Though Shakespeare lived over 400 years ago, his plays continue to resonate today across the globe. In addition to direct adaptations to stage and screen, ‘our’ Shakespeare comes to us in an assortment of guises: the plots of The Lion King and 10 Things I Hate About You, the language of Deadwood or quotations in Mad Men, and even the characters in video games. In this course we will explore some of the subtle and not-so-subtle manifestations of Shakespeare lurking on the cultural landscape today. Through readings, in-class activities, group
presentations, and a final essay, Rhetoric 116 will help you develop your interpretive and critical thinking skills. Working together, we will ask:

- How do modern and contemporary artists honor or subvert Shakespeare’s works?
- Why has Shakespeare managed to hang on to more than his share of fifteen minutes of fame while others have failed?
- What do adaptations of Shakespeare’s works tell us about our contemporary social, cultural, and political preoccupations?

By the end of the semester, you will have acquired tools for the critical analysis of culture and society relevant to a range of disciplines, including but not limited to English, History, Philosophy, Film/Media, Rhetoric, Performance Studies, and many others.

*This course satisfies the History & Theory concentration in the Rhetoric major.

This class will be taught via SYNCHRONOUS REMOTE INSTRUCTION.**

**Time conflicts are not allowed for this class.*

**Summer Session D: UGBA Courses**

The following UGBA courses this summer are available to non-Haas majors for enrollment now. As a reminder, we do not enforce prerequisites during the summer for any of our upper division UGBA courses.

Below are the UGBA courses that still have seats available in Summer Session D (July 6th -August 14th). Please share this information with your students.

- UGBA 101B.2D Macroeconomic Analysis for Business Decisions (Class Number: 10078) with Steven Wood
- UGBA 137.1D Special Topics in Finance: Financial Derivatives (Class Number: 10133) with Konstantin Magin

It is not too late to add these courses in Summer Session D. For more information regarding Summer Sessions registration, please direct your students to the following page:

http://summer.berkeley.edu/apply
Summer Session D: Freedom Summer 2020 - unique summer opportunity!

Students will take a Social Movements, Organizing, & Policy Change course (AAS 182AC) to gain both real-life and theoretical grounding in social movements and organizing, and will use cutting edge relational voter engagement strategies in a field study course (AAS 197.1) to empower unlikely voters to exercise their democratic right to vote. Here is a very short promotional video from the American Cultures Center about the program. And here is the course webpage with more information.

Summer Session E: Molecular & Cell Biology

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

ColWrit Online Courses
2 units, P/NP, July 6 - Aug 14
Taught entirely over the internet.
  ● 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
Course Opportunities: Week of June 29, 2020

- 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
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
Fall 2020: Art of Writing Courses

FALL 2020 ART of WRITING COURSES
Enrollment Now Open for Undergraduates
Art of Writing courses teach UC Berkeley undergraduates to write clearly and eloquently in a variety of forms. These intimate courses develop advanced skills in close reading and artful writing, and provide students with intensive feedback on their work. Enrollment in Fall 2020 courses listed below is now open.

Additional information is available on the Art of Writing website.

**English 143N**  
*M, W 12-1:30 pm*  
Scott Saul  
**Prose Nonfiction: Our Culture, Our Lives**  
Class Number 23967  
Academic Guide: [https://classes.berkeley.edu/content/2020-fall-english-143n-001-lec-001](https://classes.berkeley.edu/content/2020-fall-english-143n-001-lec-001)

**Sociology 190**  
*Tu 12-2 pm*  
Kim Voss & Tyler Leeds  
**Writing Across the Partisan Divide**  
Class Number 17091  
Academic Guide: [https://classes.berkeley.edu/content/2020-fall-sociol-190-004-sem-004](https://classes.berkeley.edu/content/2020-fall-sociol-190-004-sem-004)
Film 194
W 9 am-12 pm
Mark Sandberg and Lisa Jacobson
Advanced Film Writing: Words and the Moving Image
Class Number 32177
Academic Guide: https://classes.berkeley.edu/content/2020-fall-film-194-001-sem-001

Legal Studies 107Wi
M, W, F 3-4 pm, W 6-8 pm
Christopher Kutz & Anna Zaret
Theories of Justice
Class Number 33162
Academic Guide: https://classes.berkeley.edu/content/2020-fall-legalst-107wi-001-lec-001

Geography 129
Tu, Th 1:30-3 pm
Sharad Chari
Ocean Worlds
Class Number 26444
Academic Guide: https://classes.berkeley.edu/content/2020-fall-geog-129-001-lec-001
Fall 2020 Big Ideas and Discovery Course websites are now live!

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

**FALL 2020 COURSES**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Days and Time</th>
<th>Instructor(s)</th>
<th>Location</th>
<th>Credits</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>JS 39</td>
<td>Multilingualism in Israel: Arabic, Hebrew, and Yiddish Literature Post-1948</td>
<td>Wednesday 3:00pm–5:00pm</td>
<td>Oren Yirmiya</td>
<td>CN: 33725, Units: 2</td>
<td>Room: TBD</td>
<td></td>
</tr>
<tr>
<td>JS 100</td>
<td>Introduction to Jewish Religion, Culture, and People</td>
<td>Tuesday &amp; Thursday 12:30pm–2:00pm</td>
<td>Ethan Katz</td>
<td>CN: 3124, Units: 4</td>
<td>Room: Hearst Field Annex B5</td>
<td></td>
</tr>
<tr>
<td>JS 120</td>
<td>Jewish Folklore</td>
<td>Tuesday &amp; Thursday 11:00am–12:30pm</td>
<td>Sarah Levin</td>
<td>CN: 22185, Units: 3</td>
<td>Room: Dwinelle 211</td>
<td>Meets Arts &amp; Literature breadth requirement.</td>
</tr>
<tr>
<td>JS 121</td>
<td>Contemporary Music in Israel</td>
<td>Tuesday &amp; Thursday 12:30pm–1:59pm</td>
<td>Francesco Spagnolo</td>
<td>CN: 33279, Units: 4</td>
<td>Room: Morrison 128</td>
<td>Lab Section 101: M 12:00p to 1:00p, Morrison 124</td>
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<tr>
<td>JS 122</td>
<td>Introduction to Jewish Mysticism</td>
<td>Tuesday &amp; Thursday 2:00pm–3:30pm</td>
<td>Tomer Persico</td>
<td>CN: 25444, Units: 3 or 4</td>
<td>Room: Barrows 252</td>
<td>Meets Philosophy &amp; Values, L&amp;S Breadth</td>
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<tr>
<td>HISTORY 178</td>
<td>History of the Holocaust</td>
<td>Tuesday &amp; Thursday 9:30am–11:00am</td>
<td>John Efron</td>
<td>CN: 25983, Units: 4</td>
<td>Room: Valley Life Sciences 2060</td>
<td>Meets Historical Studies, L&amp;S Breadth</td>
</tr>
<tr>
<td>JS 101</td>
<td>Minority Rights: The Israeli Balance</td>
<td>Tuesday 5:00pm–8:00pm</td>
<td>Roy Peled</td>
<td>CN: 16708, Units: 4</td>
<td>Room: Latimer 102</td>
<td>Counts towards Jewish Studies Minor</td>
</tr>
</tbody>
</table>

All JS courses count towards the minor in Jewish Studies.

For more information on other courses that satisfy the requirements for the minor in Jewish Studies, please consult the Center's webpage: [jewishstudies.berkeley.edu](https://jewishstudies.berkeley.edu)
Course Opportunities: Week of June 29, 2020

JS 120
Special Topics in Jewish Studies

- Curious about dybbuks, golems, genies (jinns)?
- Want to know the folktales Shakespeare used?

Jewish Folktales Around the World:
Past and Present, Self and Other

In this course, we’ll read a sampling of Jewish folktales and jokes from diverse Jewish communities (Moroccan, Polish, Kurdish, Indian, etc.), while exploring themes such as creativity and artistic expression. We’ll also address gender, individual and group identity and values, and stereotypes. Movies and guest storytellers will complement discussions. Students from all majors and backgrounds are welcome. Conducted in English with readings in English.

Tues & Thurs
11:00a to 12:30p
Dwinelle Hall 211
Class# 22185
3 Units

Professor
Sarah Levin

Satisfies Arts & Literature breadth requirement and counts towards Jewish Studies Minor

Image from Paul Klee, "Tempelgärten" (Temple Gardens), 1920. The Binggroun Klee Collection, 1987
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 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
ergdesk@berkeley.edu * 510-642-1640 * 310 Barrows Hall
Course Opportunities: Week of June 29, 2020

ER 131: Data, Environment and Society

Instructor: Duncan Callaway, dcall@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 homeworks 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 11:59pm 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>
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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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<td>Blei and Smyth</td>
<td>HW1: Getting started</td>
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<tr>
<td>Lecture 2</td>
<td>9/3/19</td>
<td>Data design</td>
<td>DS100 Ch3</td>
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<tr>
<td>Lecture 3</td>
<td>9/5/19</td>
<td>Pandas, variable types and file types</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>
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<td>Lab 3</td>
<td>Week of 9/16/19</td>
<td>Answer HW questions; Exploratory data analysis</td>
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<td>Lecture 6</td>
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<td>Exploratory data analysis</td>
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<td>Hino et al; Pelletier et al</td>
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<td>Visualization</td>
<td>DS100 Ch6</td>
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<td>HW3: EDA; Wildfire ignitions</td>
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<td>Lab 4</td>
<td>Week of 9/23/19</td>
<td>Answer HW questions, visualization</td>
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<tr>
<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>
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<td>HW4: Visualization; renewable energy data</td>
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<td>Lab 5</td>
<td>Week of 9/30/19</td>
<td>Basic modeling, KNN</td>
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<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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<td>Lecture 11</td>
<td>10/3/19</td>
<td>Regression wrapup, KNN.</td>
<td>ISLR 3.3</td>
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<td>HW5: regression</td>
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</table>
Course Opportunities: Week of June 29, 2020

### Schedule

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</thead>
<tbody>
<tr>
<td>Lab 6</td>
<td>Week of 10/7/19</td>
<td>Answer HW questions, regularization</td>
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<td></td>
<td>10/8/19</td>
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<td>10/10/19</td>
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<tr>
<td>Lecture 12</td>
<td>10/8/19</td>
<td>Gradient Descent (Campus closed, power outage)</td>
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<td>No power!</td>
<td>10/10/19</td>
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<td>Lab 7</td>
<td>Week of 10/14/19</td>
<td>Ans HW questions; gradient descent</td>
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<td>10/15/19</td>
<td>Resampling</td>
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<td>Lecture 14</td>
<td>10/17/19</td>
<td>Model selection and regularization</td>
<td>ISLR 5.1-5.2</td>
<td>Novotny et al</td>
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<td>Lecture 8</td>
<td>Week of 10/21/19</td>
<td>Review resampling</td>
<td>ISLR 5.1-5.2</td>
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<td>Lecture 15</td>
<td>10/22/19</td>
<td>Finish regularization</td>
<td>ISLR 6.1-6.2</td>
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<td>Lecture 16</td>
<td>10/24/19</td>
<td>Classification and regression trees</td>
<td>Metz</td>
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<td>Lecture 9</td>
<td>Week of 10/28/19</td>
<td>Review classification</td>
<td>ISLR 4.1-4.3</td>
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<td>Lecture 17</td>
<td>10/29/19</td>
<td>Guest Lecture (Dan Kammen); Environmental justice</td>
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<td>Lecture 18</td>
<td>10/31/19</td>
<td>Wrap up Ei; wrap of regression trees</td>
<td>ISLR 8.1-8.2</td>
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<td>Lab 10</td>
<td>Week of 11/4/19</td>
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<td>Lecture 19</td>
<td>11/5/19</td>
<td>Classification trees; boosting, bagging and ra...</td>
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<td>Lecture 20</td>
<td>11/7/19</td>
<td>Support vector machines</td>
<td>ISLR 9.1-9.3</td>
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<td>Week of 11/11/19</td>
<td>No lab – week of veteran’s day</td>
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</table>

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<tr>
<td>Lecture 21</td>
<td>11/12/19</td>
<td>Guest lecture (Elinor Benami); Wrap up support...</td>
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<td>Lecture 22</td>
<td>11/14/19</td>
<td>Exam Review through HW10 / Lecture 21</td>
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<td>Lab 12</td>
<td>Week of 11/18/19</td>
<td>Exam Review through HW10 / Lecture 21</td>
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<td>Lecture 23</td>
<td>11/19/19</td>
<td>Exam</td>
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<td>Lecture 24</td>
<td>11/21/19</td>
<td>Guest lectures (Evan Sherwin and Emma Tome)</td>
<td>Reading TBD</td>
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<td>Week of 11/25/19</td>
<td>Project check in</td>
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<td>Lecture 25</td>
<td>11/26/19</td>
<td>Neural Networks</td>
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<td>Lab 14</td>
<td>Week of 12/2/19</td>
<td>Project check in</td>
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<td>Lecture 26</td>
<td>12/3/19</td>
<td>Neural Networks</td>
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<td>Lecture 27</td>
<td>12/5/19</td>
<td>Career panel</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.

Fall 2020: Berkeley Connect

Berkeley Connect is open to all students at UC Berkeley, it is a one-unit course, taken Pass/Not Pass (course number 98BC for freshmen and sophomores, 198BC for juniors and seniors). It is offered Fall and Spring through 15 different academic departments on campus, but you don't need to be a declared or intended major in one of those departments in order to enroll. When you sign up through a department that aligns with your academic interests, you will be assigned a graduate student from that department who will serve as your personal mentor for the semester. At the same time, you'll be placed in a group with 19 other students who share your interest in that subject. Over the course of the semester, you'll meet with your mentor for one-on-one conversations about anything you want to talk about related to your academic life, and you'll meet with your small group for discussions facilitated by your mentor about the academic discipline and about life at a research university. You'll also participate in special events organized just for Berkeley Connect students, featuring professors and alumni as guest speakers. Berkeley Connect assigns no homework, reading, tests or papers—it does not add to your workload, but rather gives you an opportunity to build community here at UC Berkeley so you can make the most of your time here.

Students consistently report that participating in Berkeley Connect increases their sense of belonging at UC Berkeley and their confidence they can succeed here. During the Spring 2020 semester, Berkeley Connect successfully operated as a remote program during the campus closure. In the event that any part of the 2020-21 academic year must be virtual rather than
in-person, Berkeley Connect will provide you with a great opportunity to meet and interact with your fellow students and start building your personal network.

If you have any questions about Berkeley Connect, please feel free to contact the program office at berkeleyconnect@berkeley.edu.

**Fall 2020: Deplastifying the Planet**

The Sutardja Center for Entrepreneurship and Technology is excited about an exciting, environmentally-focused entrepreneurship course they are offering in Fall 2020. The course, **Deplastify the Planet** (INDENG 190E), is a 1-2 unit seminar course where students have the opportunity to work with industry leaders to solve issues regarding plastic waste.
Deplastify the Planet
Fall 2020

INDENG 290 001 – LEC 001

- Gert Christen
- Wednesday
  5:00 pm - 6:59 pm
- Barrows 60

Class #: 16952 Units: 2

The world is drowning in the plastic that we created, and which takes hundreds of years to decompose. It is a disaster choking our oceans, poisoning our food chains and clogging our landfills. To solve this problem, we must find ways to replace or at least reduce plastic in manufacturing, to reuse, recycle or repurpose the plastic already manufactured, to recuperate discarded plastic from the oceans and landfills, and to destroy plastic responsibly.

There are companies that want to achieve the same and will partner with UC Berkeley for this course. Each company is preparing a “deplasifying challenge” based on their business and student teams will choose a challenge for which they wish to develop an entrepreneurial solution. The student teams will be supported by representatives from the partner companies. A final list of partner companies and challenges will be provided before the start of the course. Past company sponsors include Whole Foods, Faurecia Automotive, Danone, Nestle, Recology SF, Method Home Products, Samsung and more!

The course will cover ethnographic interviewing, design thinking, ideation tools, designing and prototyping products, validation with customer feedback, and business modeling.

All majors are welcome!
Undergraduates see here for more info: https://bit.ly/3x8Ey4b
Graduates see here for more info: https://bit.ly/30mWyzP