EEB 87: California’s DNA—a field course  
Fall 2018

Class Hours:  M 3:30-4:30  
Classroom: Dodd 161  
Office Hours (OH):  See below; can also meet by appointment

Instructors:
Robert Wayne  rwayne@g.ucla.edu  
Ana Garcia Vedrenne  garciavedrenne@g.ucla.edu  
Maura Palacios Mejia  mauraeva@gmail.com  

OH: By appt only, 4149 Terasaki  
OH: W 10-11am, 4153 Terasaki  
OH: T 10-11am, 4153 Terasaki

TAs:
Audra Huffmeyer  ahuffmeyer@ucla.edu  
Meixi Lin  meixilin@g.ucla.edu  

OH: M 1-2pm, Hershey Hall Courtyard  
OH: M 12-1pm, Terasaki courtyard

Course Description

California has a tremendous diversity of plants and animals, many of which are the foundations of our thriving economy and pride in this state. Monitoring biodiversity from microbes to mammals in California is an urgent priority for conservation given climate change and habitat degradation. Join the CALeDNA community science program and do fieldwork to sample soil and sediments in California. You’ll get familiar with UC Natural Reserves spanning coast to woodland, and desert to mountains. We’ll analyze the samples for DNA, to capture a snapshot of the local biodiversity. You'll get a sneak peek into high tech program and help pioneer new environmental DNA forensic technology. You will gain a new understanding of the role biodiversity has in ecosystem and human health. You will also understand how museums and non-profits translate science to better conservation practices. This course is limited to Freshman of any major, has no pre-requisites and prepares you for a more intensive related upper level science course in spring quarter, also reserved for Freshman and transfer students. Come experience nature, science and conservation in a non-threatening and engaging format.

Email Policy

All emails to instructors must have “EEB 87” in the subject line. We will make every effort to respond to your email within 48 hours.
Course Materials

- Course CCLE website: https://ccle.ucla.edu/course/view/18F-EEBIOL87-1
- CALeDNA website: http://www.ucedna.com/
- iNaturalist project: https://www.inaturalist.org/projects/eeb87-fall2018
- Smartphone or ipad (access to one can be provided if needed)
- iClicker (purchase through UCLA bookstore or online)
  UCLA makes some iClickers available for rental: https://oid.ucla.edu/iclicker-rentals
- Field notebook or sketchbook for making field observations
  Brand “Rite in the Rain” (waterproof paper) is preferred for field notebook. Can be purchased online.
- Course readings and videos will be posted to the CCLE website.

Course Objectives

By the end of the course, you will be able to:
- Evaluate the roles of biodiversity, ecology, and evolutionary biology research in conservation biology.
- Identify ecosystems and explain how they provide benefits to human health.
- Recognize cutting edge molecular methods for surveying biodiversity.
- Outline the steps of the scientific method and its application to eDNA studies.
- Recognize your capability and importance as a community scientist by participating in field work at UC reserve sites.
- Appreciate the University of California’s role in eDNA research and be exposed to diverse scientists working in this field

Course Structure

Class Structure
This class will include lectures, in-class activities, field trips and field reports.

Grading Structure
The course is for Pass/No Pass only. Participation in a total of 12 hours of fieldwork and attendance/participation of 8 lecture hours is required to pass.

You must also complete the course assignments. Each student must collect 2-3 eDNA samples, keep a field notebook, and make 30 photo observations of living organisms in the wild, and upload them to https://www.inaturalist.org/projects/eeb87-fall2018.

- Participation (Clicker questions; group discussion): 25%
- Class assignments (Homework questions; mini-project): 25%
- Field Trips (attendance; sample collection): 25%
- Field Notebook (individual notebook; iNaturalist observations): 25%
Assignments
Field trips: 2-4 hour field trips for sampling and natural observation. You are required to make take field notes and make iNaturalist observations.

Each student will be required to attend one UCLA sampling field trip, one off-campus field trip, and to go on one hike in an outdoor area of your choice (see Field Trip section for more details).

Class: Short clicker-style questions, a short quiz at start of class on readings when assigned.

Course Policies

Class Attendance Policy
This is a seminar-style class that meets once a week. Attendance is mandatory to receive credit for participation and in-class assignments. If you need to miss a class, you must obtain permission from the instructor before any anticipated absence, or there must be a serious, mitigating circumstance after the fact, also subject to approval. In all cases, you must be able to provide evidence to establish the basis of any request. Only one excused absence is permitted during the quarter. This is the only exception to the mandatory attendance policy.

Late Assignment Policy
Assignments must be submitted on time. Remember that for online assignments, technology can be fickle: don’t wait until the last minute, in case CCLE causes problems! After the deadline, assignments will be accepted for a 50% deduction to the score up to 24 hours after the deadline. After this any assignments handed in will be given 0. Extensions may be given on a case-by-case basis; please communicate with your instructor.

Academic Integrity and Honesty
Students are required to comply with the University policy on academic integrity. This includes plagiarism and cheating on in-class exercises, exams, and other assignments. The UCLA student guide on academic integrity is here.

Accommodations for Disabilities
Reasonable accommodations for students with verified disabilities will be made in coordination with the UCLA Center for Accessible Education (CAE). Field trips will require extended walking and some movement over uneven ground; please contact the instructors if you need accommodations.
Schedule
The schedule is tentative and subject to change.

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1</td>
<td>Course Overview; What is biodiversity and why does it matter?</td>
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<tr>
<td>2</td>
<td>What is the geology of California?</td>
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<tr>
<td>3</td>
<td>What is an ecosystem?</td>
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<td>4</td>
<td>What is the microbiome?</td>
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<td>5</td>
<td>How does biodiversity change?</td>
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<td>6</td>
<td>What can we learn from the CALeDNA Program?</td>
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<td>7</td>
<td>Veteran’s Day - No Class</td>
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<tr>
<td>8</td>
<td>What has eDNA taught us about history?</td>
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<td>9</td>
<td>What are other examples of eDNA research?</td>
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<tr>
<td>10</td>
<td>How can we influence and inform policy?</td>
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</tbody>
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Field Trips
You are required to participate in a **minimum** of three field trips. The first one must be an on campus training trip (to either Sage Hill or UCLA Mildred E. Mathias Botanical Garden- see dates below).

At least one of the other field trips should be to one of the off campus locations proposed below.

The third trip is your choice. You can either go on another of the trips we’ve organized, join a CALeDNA bioblitz of your choice (sign up on the website [https://data.ucedna.com/events/](https://data.ucedna.com/events/)), or plan your own hike!

<table>
<thead>
<tr>
<th>Week</th>
<th>Date(s)</th>
<th>Time</th>
<th>Location</th>
<th>Type</th>
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</thead>
<tbody>
<tr>
<td>2</td>
<td>Wednesday, October 10</td>
<td>3:30 pm - 5:00 pm</td>
<td>Sage Hill</td>
<td>on campus</td>
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<tr>
<td>2</td>
<td>Saturday, October 13</td>
<td>9:30 am - 11:00 am</td>
<td>Sage Hill</td>
<td>on campus</td>
</tr>
<tr>
<td>3</td>
<td>Sunday, October 14</td>
<td>3:30 pm - 5:00 pm</td>
<td>UCLA Mildred E. Mathias Botanical Garden</td>
<td>on campus</td>
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<tr>
<td>3</td>
<td>Wednesday, October 17</td>
<td>3:30 pm - 5:00 pm</td>
<td>UCLA Mildred E. Mathias Botanical Garden</td>
<td>on campus</td>
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<tr>
<td>4</td>
<td>Wednesday, October 24</td>
<td>3:30 pm - 5:30 pm</td>
<td>Skirball (Santa Monica Mountains Conservancy)</td>
<td>off campus (cars)</td>
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<tr>
<td>4</td>
<td>Friday,</td>
<td>10:00 am - 2:00 pm</td>
<td>Stunt Ranch Santa Monica</td>
<td>off</td>
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<td>No.</td>
<td>Date</td>
<td>Time</td>
<td>Location</td>
<td>Location Access</td>
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<tr>
<td>5</td>
<td>October 26</td>
<td>Mountains Reserve</td>
<td>campus (bus)</td>
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<tr>
<td>6</td>
<td>Sunday, November 4</td>
<td>11:00 am - 4:30 pm</td>
<td>Carpinteria Salt Marsh Reserve</td>
<td>off campus (bus)</td>
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<tr>
<td>9</td>
<td>Monday, November 12</td>
<td>10:00 am - 4:00 pm</td>
<td>James San Jacinto Mountain Reserve</td>
<td>off campus (bus)</td>
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<tr>
<td>9</td>
<td>Wednesday, November 28</td>
<td>3:30 pm - 5:30 pm</td>
<td>Griffith Park</td>
<td>off campus (cars)</td>
</tr>
<tr>
<td>9</td>
<td>Saturday, December 1</td>
<td>10:00 am - 2:00 pm</td>
<td>LA River</td>
<td>off campus (bus)</td>
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Learning Community Expectations

This course is designed for us to be a **learning community**, where all of us have individual contributions and questions that can enhance our learning experience. With that in mind, we have strived to make this course be an engaging and a welcoming environment that inspires critical thinking, creativity, and continual feedback. We have developed a variety of activities and have a strong support system of Instructors and Teaching Assistants to help answer any questions or concerns regarding difficulties or improvements for this class. You can contact anyone from the team in person, via email, and during office hours. If these times are not convenient, you can also schedule another time to meet.

In this class, we will work to promote an anti-discriminatory environment where everyone feels safe and welcome. Discrimination can be direct or indirect and can take place at both the institutional and personal levels. Discrimination of any kind, such as harassment, bullying or discrimination is unacceptable and we are committed to providing equal opportunity. The success of this policy relies on the support and understanding of everyone in this class. We all have a responsibility not to be offensive to each other, or to participate in, or condone harassment or discrimination of any kind. Any acts of discrimination are taken seriously, will be fully investigated, and may have dire consequences.

UCLA’s Office for Equity, Diversity, and Inclusion provides resources, events, and information about current initiatives at UCLA to support equality for all members of the UCLA community. We hope that you will communicate any occurrences of discrimination to any team member if you experience anything in this course that does not support an inclusive environment, and you can also report any incidents you may witness or experience on campus to the Office of Equity, Diversity, and Inclusion on their website.

**Use of Laptops, Tablets or Phones in Class:** You can decide how you want to use your laptop, tablet or phone in class. Research finds that laptop multitasking is likely to hinder not only your own learning, but also the learning of anyone who can see your laptop. For the sake of your peers’ learning, when using your electronic device, please only work on class material.