

Biology 5455 - - Desert Field Ecology

Fall Semester 2021

Each Monday [(3:00-4:20) & all of Fall Semester break],

Monday classes in person in JTB 130

Instructor: Dale Clayton (he, his, him)

Email: Clayton@biology.utah.edu

Phone Number: 801-230-3170

Office Hours: By appointment

Office Location: ASB 570a

Skype/IM/Canvas Conference Office Hours: By appointment

Teaching assistants (office hours by appointment)

Kyle Davis (he, his, him): Kyle.M.Davis@utah.edu

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COVID Information:

This class will meet **in person** for Fall 2021. The ongoing pandemic makes this form of instruction challenging - *particularly in the case of a field course that will involve 2000 miles of travel in mini-vans!* However, the following precautions will help protect you and others:

Wear a mask: To protect the health of everyone in the class, mask use is strongly encouraged. According to the CDC, wearing a mask remains an effective means of preventing infection for both unvaccinated and vaccinated people. Regardless of what someone chooses (mask or no mask), the University of Utah seeks to foster a sense of community and asks everyone on campus to be respectful of individual decisions on mask wearing.

Get vaccinated: All members of the University of Utah community are encouraged to receive a COVID-19 vaccine because vaccination is proving to be highly effective in preventing severe COVID-19 symptoms, hospitalization, and death from coronavirus. On-campus vaccination information: <https://alert.utah.edu/covid/vaccine/>

Get tested and report positive results: Voluntary asymptomatic testing will continue to be available weekly for all members of the campus community. COVID testing information <https://alert.utah.edu/covid-19-testing/> Report positive COVID tests: via this website: <https://coronavirus.utah.edu/>.

Isolate: If you feel sick or have been exposed to COVID (([UU Covid Exposure Guidelines](#)) please **do not** come to class. Please contact the instructor or the TAs so that arrangements can be made for you to complete all assignments, quizzes, and exams in a timely manner.

Stay Informed: Current information about the university's response to COVID-19 can be found at: <https://coronavirus.utah.edu/>

Required Materials

- Field Guide to the Birds of Western North America, National Geographic Society 2008.
- Sowell, John B. 2001. Desert Ecology. University of Utah Press. 208 pp.
- You will receive a course manual containing details of the field portion of the course and some additional readings.

Course Description

Introduction to desert ecology with emphasis on the four major desert ecosystems of North America (Great Basin, Mojave, Sonoran, and Chihuahuan). Includes a 9 day desert field trip during the semester break. Subtopics include meteorology, hydrology, geology, geography, botany and zoology/entomology, with emphasis on birds and plants. Students will generate testable hypotheses under field conditions, perform data analysis, and present their findings. Individual journal and field notebooks are required, as well as a group project with oral and written presentations.

Credits 3 (counts as an L1 lab course)

Prerequisites & course fee

Instructor consent, fee: \$350.00

Course Outcomes

By the end of this course, you will be able to:

- Generate and test ecological hypotheses.
- Collect and analyze field ecological data.
- Understand the influence of abiotic factors and habitat on species diversity.
- Identify birds, plants and other organisms.
- Prepare and deliver a clear oral conference presentation.
- Understand the function of the major sections of a scientific paper.
- Write a mock scientific journal article.

Teaching and Learning Methods

The purpose of this course is to provide you with nine days of complete immersion in desert field ecology, preceded by lectures and discussions introducing Desert Ecology. You will be introduced to concepts and methods used by ecologists to understand the diversity of species found in deserts, which are among the most diverse habitats in the world (which many people find surprising). Following the field portion of the course you will learn how to collate and analyze field data. You will also learn how to prepare a journal article, and give an oral research presentation.

The focal study groups are birds and plants, but we will also study other groups. We will do rough estimates of plant diversity and look at the influence of plants on bird diversity. Although birds and plants are relatively easy groups to study during a course of this kind, the general concepts and approaches we use can be applied to virtually any group of organisms. No previous background in ornithology or botany is required to take this course. Weekly lectures and exercises prior to the field portion of the course will provide introductions to bird and plant identification.

Students will collect data in the field using a small field notebook (this notebook is for your use and will not be graded). Data recorded in the field will be transcribed each day into what is known as the "Grinnell system". We will adopt two components of the Grinnell system, which will be kept together in a single 8.5"x11" 3-ring binder:

1) Daily journal: *Chronological sequence* of field excursions with general information on locality, habitats, weather, lists of species seen, etc. A journal entry will be prepared each afternoon or evening using the notes you made that day in your small field notebook.

2) Species accounts: Students will create accounts for many of the species seen, especially those observed repeatedly, or for some length of time. Species accounts get organized *in taxonomic sequence* after the daily journal section of the binder.

This binder will be due the final day of the field trip during fall break.

We will assemble a large class data set, which will form the basis for oral presentations that students will give near the end of the course in a mini-conference. The class data set will also be used to produce a mock journal article that each student will prepare. Articles will be submitted to a mock journal, where it will be reviewed and students will have a chance to revise and resubmit their articles to improve their grades.

Grading will be based on the following 5 activities (% of final grade):

- 1) Five quizzes during first half of semester - worth 2% each (10%).
- 2) Field binder (Grinnell System), Part 1: Daily journal entries during field trip (20%).
- 3) Field binder (Grinnell System), Part 2: Bird species accounts during field trip (20%).
- 4) Oral presentation with partner on field trip research project (25%).
- 5) Mock journal article on field trip research project (25%).

The course has no midterm or final exams.

Grading is based on the following scale (grading is not on a curve):

- A, 90-100%
- B, 80-89.99%
- C, 70-79.99%
- D, 60-69.99%
- E, < 60%

Weekly schedule (One meeting per week, and 9 full days over fall break)

1. (Aug 23) Introduction to course and participants
2. (Aug 30) The desert environment (Quiz 1 - on Sowell Ch. 1)

3. (Sep 6) **NO CLASS** (Labor Day)
4. (Sep 13) Plants (Quiz 2 - on Sowell Ch. 2, 3)
5. (Sep 20) Animals (Quiz 3 - on Sowell Ch. 4, 5)
6. (Sep 27) Animal life histories/ecosystems (Quiz 4 - on Sowell Ch. 6, 7)
7. (Oct 4) Islands in the sky/humans in the desert (Quiz 5 - on Sowell Ch. 8, 9)
8. **(Oct 9 – 17 = fall break) Field trip**
9. (Oct 18) **NO CLASS**
10. (Oct 25) Compilation and discussion of class data set
11. (Nov 1) How to give a scientific talk and write a mock journal article
12. (Nov 8) Return and discussion of field binders
13. (Nov 29) Mini-conference with talks (1 of 2) (and submission of journal articles)
14. (Nov 15) Mini-conference with talks (2 of 2)
15. (Nov 22) Return and discussion of refereed journal articles
16. (Nov 29) Help with journal article revisions
17. (Dec 6) Final class (& re-submission of revised journal articles)

University Policies

1. **COVID-19 Campus Guidelines.** Current information about the university's response to COVID-19 can be found at: <https://coronavirus.utah.edu>
 - On-campus vaccination information: <https://alert.utah.edu/covid/vaccine/>
 - COVID testing information: <https://alert.utah.edu/covid-19-testing/>
 - Self reporting forms: In order to help monitor the spread of COVID-19 and respond appropriately, the university requires that all students, faculty and staff complete a reporting form if they have been exposed to, are being tested for or have been diagnosed with COVID-19: Self-reporting Form
 - Exposure guidelines: If you have been exposed to COVID-19, you should read and follow the guidelines posted at: University COVID exposure guidelines
2. **The Americans with Disabilities Act.** The University of Utah seeks to provide equal access to its programs, services, and activities for people with disabilities. If you will need accommodations in this class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, (801) 581-5020. CDS will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in an alternative format with prior notification to the Center for Disability Services.

- 3. *University Safety Statement.*** The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801-585-COPS (801-585-2677). You will receive important emergency alerts and safety messages regarding campus safety via text message. For more information regarding safety and to view available training resources, including helpful videos, visit safeu.utah.edu.
- 4. *Addressing Sexual Misconduct.*** Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran's status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS).
- 5. *Undocumented Student Support Statement.*** Immigration is a complex phenomenon with broad impact—those who are directly affected by it, as well as those who are indirectly affected by their relationships with family members, friends, and loved ones. If your immigration status presents obstacles to engaging in specific activities or fulfilling specific course criteria, confidential arrangements may be requested from the Dream Center. Arrangements with the Dream Center will not jeopardize your student status, your financial aid, or any other part of your residence. The Dream Center offers a wide range of resources to support undocumented students (with and without DACA) as well as students from mixed-status families. To learn more, please contact the Dream Center at 801.213.3697 or visit dream.utah.edu.
- 6. *Drop/Withdrawal.*** Students may drop a course within the first two weeks of a given semester without any penalties. Students may officially withdraw (W) from a class or all classes after the drop deadline through the midpoint of a course. A “W” grade is recorded on the transcript and appropriate tuition/fees are assessed. The grade “W” is not used in calculating the student's GPA. For deadlines to withdraw from full-term, first, and second session classes, see the U's Academic Calendar.
- 7. *Academic Misconduct.*** In order to ensure that the highest standards of academic conduct are promoted and supported at the University, students must adhere to generally accepted standards of academic honesty. Acts of academic misconduct include cheating, plagiarizing, research misconduct, misrepresenting one's work, and inappropriately collaborating. Suspected cases of academic misconduct will be dealt with according to the procedures found in the Student Code, University Policy 6-400(V)(<http://regulations.utah.edu/academics/6-400.php>). Instances of academic

misconduct will be recorded in a database that may be made available to other University of Utah Departments and Colleges.

- 8. *Wellness Statement.*** Your personal health and wellness are essential to your success as a student. Personal concerns like stress, anxiety, relationship difficulties, depression, or cross-cultural differences can interfere with a student's ability to succeed and thrive in this course and at the University of Utah. For helpful resources to manage your personal wellness and counseling options, contact:

Center for Student Wellness

801-581-7776

wellness.utah.edu

2100 Eccles Student Life Center

1836 Student Life Way

Salt Lake City, UT 84112

Women's Resource Center

801-581-8030

womenscenter.utah.edu

411 Union Building

200 S. Central Campus Dr.

Salt Lake City, UT 84112

Diverse Student Support. Your success at the University of Utah is important to all of us here! If you feel like you need extra support in academics, overcoming personal difficulties, or finding community, the U is here for you.

Student Support Services (TRIO)

TRIO federal programs are targeted to serve and assist low-income individuals, first-generation college students, and individuals with disabilities.

Student Support Services (SSS) is a TRIO program for current or incoming undergraduate university students who are seeking their first bachelor's degree and need academic assistance and other services to be successful at the University of Utah.

For more information about what support they provide, a list of ongoing events, and links to other resources, view their website or contact:

Student Support Services (TRIO)

801-581-7188

trio.utah.edu

Room 2075

1901 E. S. Campus Dr.

Salt Lake City, UT 84112

American Indian Students

The AIRC works to increase American Indian student visibility and success on campus by advocating for and providing student centered programs and tools to enhance academic success, cultural events to promote personal well-being, and a supportive “home-away-from-home” space for students to grow and develop leadership skills.

For more information about what support they provide, a list of ongoing events, and links to other resources, view their website or contact:

American Indian Resource Center

801-581-7019

diversity.utah.edu/centers/airc

Fort Douglas Building 622
1925 De Trobriand St.
Salt Lake City, UT 84113

Black Students

Using a pan-African lens, the Black Cultural Center seeks to counteract persistent campus-wide and global anti-blackness. The Black Cultural Center works to holistically enrich, educate, and advocate for students, faculty, and staff through Black centered programming, culturally affirming educational initiatives, and retention strategies.

For more information about what support they provide, a list of ongoing events, and links to other resources, view their website or contact:

Black Cultural Center

801-213-1441

diversity.utah.edu/centers/bcc

Fort Douglas Building 603
95 Fort Douglas Blvd.
Salt Lake City, UT 84113

Students with Children

Our mission is to support and coordinate information, program development and services that enhance family resources as well as the availability, affordability and quality of child care for University students, faculty and staff.

For more information about what support they provide, a list of ongoing events, and links to other resources, view their website or contact:

Center for Childcare & Family Resources

801-585-5897

childcare.utah.edu

408 Union Building

200 S. Central Campus Dr.

Salt Lake City, UT 84112

Students with Disabilities

The Center for Disability Services is dedicated to serving students with disabilities by providing the opportunity for success and equal access at the University of Utah. They also strive to create an inclusive, safe, and respectful environment.

For more information about what support they provide and links to other resources, view their website or contact:

Center for Disability Services

801-581-5020

disability.utah.edu

162 Union Building

200 S. Central Campus Dr.

Salt Lake City, UT 84112

Students of Ethnic Descent

The Center for Ethnic Student Affairs offers several programs dedicated to the success of students with varied cultural and ethnic backgrounds. Their mission is to create an inclusive, safe campus community that values the experiences of all students.

For more information about what support they provide, a list of ongoing events, and links to other resources, view their website or contact:

Center for Ethnic Student Affairs

801-581-8151

diversity.utah.edu/centers/cesa/

235 Union Building

200 S. Central Campus Dr.

Salt Lake City, UT 84112

English as a Second/Additional Language (ESL) Students

If you are an English language learner, there are several resources on campus available to help you develop your English writing and language skills. Feel free to contact:

Writing Center

801-587-9122

writingcenter.utah.edu

2701 Marriott Library

295 S 1500 E

Salt Lake City, UT 84112

English for Academic Success (EAS) Program

801-581-8047

linguistics.utah.edu/eas-program

2300 LNCO

255 S. Central Campus Dr.

Salt Lake City, UT 84112

English Language Institute

801-581-4600

continue.utah.edu/eli

540 Arapeen Dr.

Salt Lake City, UT 84108

LGBTQ+ Students

The LGBTQ+ Resource Center acts in accountability with the campus community by identifying the needs of people with a queer range of [a]gender and [a]sexual experiences and responding with university-wide services.

For more information about what support they provide, a list of ongoing events, and links to other resources, view their website or contact:

LGBTQ+ Resource Center

801-587-7973

lgbt.utah.edu ([Links to an external site.](#))

409 Union Building

200 S. Central Campus Dr.

Salt Lake City, UT 84112

Veterans & Military Students

The mission of the Veterans Support Center is to improve and enhance the individual and academic success of veterans, service members, and their family members who attend the university; to help them receive the benefits they earned; and to serve as a liaison between the student veteran community and the university.

For more information about what support they provide, a list of ongoing events, and links to other resources, view their website or contact:

Veterans Support Center

801-587-7722

veteranscenter.utah.edu (Links to an external site.)

418 Union Building

200 S. Central Campus Dr.

Salt Lake City, UT 84112

Women

The Women's Resource Center (WRC) at the University of Utah serves as the central resource for educational and support services for women. Honoring the complexities of women's identities, the WRC facilitates choices and changes through programs, counseling, and training grounded in a commitment to advance social justice and equality.

For more information about what support they provide, a list of ongoing events, and links to other resources, view their website or contact:

Women's Resource Center

801-581-8030

womenscenter.utah.edu

411 Union Building

200 S. Central Campus Dr.

Salt Lake City, UT 84112

Inclusivity at the U

The Office for Inclusive Excellence is here to engage, support, and advance an environment fostering the values of respect, diversity, equity, inclusivity, and academic excellence for students in our increasingly global campus community. They also handle reports of bias in the classroom as outlined below:

Bias or hate incidents consist of speech, conduct, or some other form of expression or action that is motivated wholly or in part by prejudice or bias whose impact discriminates, demeans, embarrasses, assigns stereotypes, harasses, or excludes individuals because of their race, color, ethnicity, national origin, language, sex, size, gender identity or expression, sexual orientation, disability, age, or religion.

For more information about what support they provide and links to other resources, or to report a bias incident, view their website or contact:

Office for Inclusive Excellence

801-581-4600

inclusive-excellence.utah.edu (Links to an external site.)

170 Annex (Wing D)

1901 E. S. Campus Dr.
Salt Lake City, UT 84112

Other Student Groups at the U

To learn more about some of the other resource groups available at the U, check out:

getinvolved.utah.edu/

studentsuccess.utah.edu/resources/student-support