

WILDLIFE ECOLOGY AND CONSERVATION BIOLOGY

WLDL 458/658



Urban Ecology Center, Milwaukee, WI



A UWSP student photo of a hummingbird during a field course to Costa Rica. Ecotourism is popular in Costa Rica.

Students will be able to:

1. Discuss concepts in conservation biology as they relate to local, national, and global issues.
2. Analyze problems encountered in the field of conservation biology.
3. Design, conduct, and present a wildlife ecology project on squirrels.
4. Collaborate with a team in person and/or in an online environment.
5. Discuss conservation biology issues with your peers.

Men argue.
Nature Acts.

Voltaire

Course Description and Objectives

Welcome to WLDL 458/658, Wildlife Ecology and Conservation Biology. This course will introduce you to the relatively young science of Conservation Biology and the issues that conservation biologists engage. From its roots, conservation biology was developed as a deeply collaborative discipline and as such the approaches used and the tools needed are widely varied. However, if there is a central theme that unifies conservation biology, it is the preservation of biological diversity and ecosystem function. To accomplish this, many stakeholders including scientists, corporations, governmental agencies, private landowners, and others are invited to participate in the design and success of the various programs and studies.

Wisconsin was home to some of the founders of the field as we know it today. In fact, we are about an hour's drive from both the homestead of John Muir near Portage and the famous shack of Aldo Leopold near Baraboo. In addition to these western pioneers of the preservationist and conservationist ethics, the Native Americans in Wisconsin had already been practicing sustainable development through the principles of honorable harvest, which teaches to take only one you need, never more than half, and always leave a gift in return. I will be following CDC mask guidelines, which change weekly. If Portage County is high risk for Covid spread I will be wearing a mask. Ironically, the one week I didn't wear a mask at Treehaven I got sick.

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**LECTURE: MW 2:00-
2:50 TNR 352,
DISCUSSION: D1 W
8:00 – 8:50 TNR 359, D2
W 9:00 – 9:50 TNR 352**

**ZOOM/LIVE - OH
BY APPOINTMENT
OF FIND ME AFTER
CLASS**

WHETHER WE AND OUR POLITICIANS KNOW IT OR NOT, NATURE IS PARTY TO ALL OUR DEALS AND DECISIONS, AND SHE HAS MORE VOTES, A LONGER MEMORY, AND A STERNER SENSE OF JUSTICE THAN WE DO.

Wendell Berry

“Ungrading”

The most stressful part of a course for both the student and the teacher is grades and grading. What if we could all just focus on learning? What if you knew your grade before the semester even began? I’ve been rethinking how I assess learning since the Covid semester. Instead of accumulating points in the traditional way, we are going to use contract grading this semester in this course. Basically, how much work are you willing to put in for an A or for a B. Each assignment will be assessed on a 3-point scale; 1=try again, 2=good but could improve, 3=satisfactory or good job. When you get a job, this is more likely what you will experience, except without the numbers. There will be 10 weekly midterm exam/reflections, 4 challenges, weekly policy discussion that will be student led, and a semester-long research project conducted as a class. Reflections and Challenges can be submitted multiple times until you are satisfied with your grade. There are due dates, but I will accept revised reflections and challenges through the last day of the semester on December 15th.

For a grade of A the student will complete 10 weekly reflections worth at least 25 points (maximum 30 points), 4 challenges worth 12 points, lead a policy discussion with your team, collect data and present with your research team, and complete a self and peer evaluation.

For a grade of B the student will complete 8 weekly reflections worth at least 20 points (24 maximum), 3 challenges worth at least 9 points, lead a policy discussion with your team, collect data and present with your research team, and complete a self and peer evaluation.

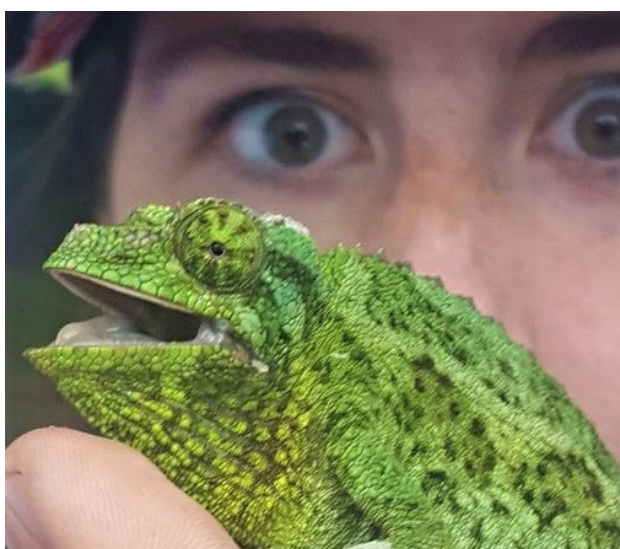
Because this is required for the major and is a capstone course, the grades of C and lower are reserved for students that don’t fulfill their contract after discussion with the instructor. There will be a midterm grade reflection to see if you are on track for your contracted grade.



Snapshot Wisconsin: There are more than 1000 trail cameras throughout the state hosted by citizen volunteers. The data is used by the WDNR for species management plans. This buck was captured by the camera in Schmeckle Reserve in 2019.



UWSP students work in a taro patch in the Waipio Valley during a field course to Hawaii in 2017. Your effectiveness as a wildlife biologist will be improved if you are willing to work together with the stakeholders. Sometimes that means getting in the muck.



UWSP student holds a Jackson’s chameleon, an invasive species in Hawaii. Biosecurity is a priority in delicate island ecosystems.

Teamwork

ONE MAN ALONE CAN BE PRETTY DUMB SOMETIMES, BUT FOR REAL BONA FIDE STUPIDITY, THERE AIN’T NOTHIN’ CAN BEAT TEAMWORK.

EDWARD ABBEY

Research Presentation

The team presentation will be a study focusing on squirrel behavioral ecology. We will work on a national study of squirrel optimal foraging using Giving Up Densities. I will go over the details during the discussion sections where we can also put together teams. This will be challenging and interesting as we will collect the data prior to spring break so there will be snow on the ground. We will discuss the best way to do this as a class. There will also be a peer assessment portion to this assignment with team members assessing each other on contribution and participation throughout the semester.

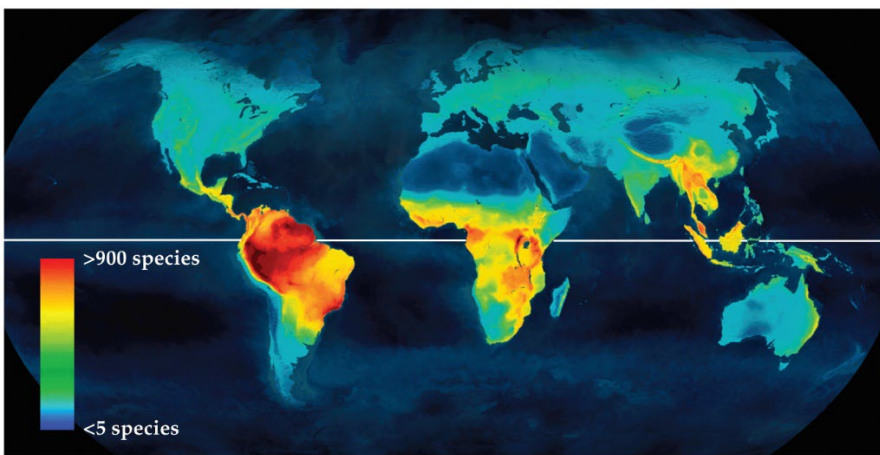
SYLLABUS SPRING 2022

Week	Topic	Pages in Conservation Biology
1 September 5 th September 7 th	Labor Day Rise of Conservation Biology Discussion: Teams	26-45
2 September 12 th September 14 th September 16 th	Biodiversity Concepts I Biodiversity Concepts II Discussion: Squirrel GUD experiment Midterm 1	54-66 67-77
3 September 19 th September 21 st September 23-25	Global Patterns of Biodiversity I Global Patterns of Biodiversity II Discussion: Protected lands and biodiversity Midterm 2	82-91 92-113
4 September 26 th September 28 th September 30 th	Values of Biodiversity I Values of Biodiversity II Discussion: Student led - State wildlife policies Midterm 3	118-137
5 October 3 rd October 5 th October 7 th	Biodiversity and Ecosystem Services I Biodiversity and Ecosystem Services II Discussion: Student led – Pittman-Robertson Act Midterm 4	141-158 159-180
6 October 10 th October 12 th	Ecological Economics I Ecological Economics II Discussion: Student led – Lacey Act	181-194 195-210
7 October 17 th October 19 th October 21 st	Extinction I Extinction II Discussion: Student led - Migratory bird policies Midterm 5	215-229 230-245
8 October 24 th October 26 th October 28 th	Habitat Loss I Habitat Loss II Discussion: How animals perceive the world Midterm 6	249-276 277-289
9 October 31 st November 2 nd	Overexploitation I Overexploitation II Discussion: Student led – International policies	293-326
10 November 7 th November 9 th November 11 th	Invasive Alien Species I Invasive Alien Species II Discussion: Biosecurity – Hawaii Case Study Midterm 7	329-368
11 November 14 th November 16 th November 18 th	Climate Change I Climate Change II Discussion: Stats with Jamovi Midterm 8	369-391 392-400
12 November 21 st November 23 rd	Species-level Conservation I Species-level Conservation II Discussion: Stu led – Endangered Species Act	405-422 423-440
13 November 28 th November 30 th December 2 nd	Community and Ecosystem Conservation I Community and Ecosystem Conservation II Discussion: Presentation workshop Midterm 9	445-460 461-474
14 December 5 th December 7 th December 9 th	Ex Situ Conservation I Ex Situ Conservation II Discussion: Presentations I Midterm 10	521-540 541-551
15 December 12 th December 14 th	Final course reflection/discussion No class	

UWSP RELEASES COVID-19 CAMPUS GUIDELINES

COVID-19 and other precautions

- We will follow university guidance (which includes CDC guidance) regarding COVID-19, monkeypox, and other health-related issues. Please reference the [UWSP's website related to COVID](#). The [CDC website](#) provides guidance on isolation and precautions related to COVID. As needed, we will announce policy changes that affect you in this class. It is expected that everyone will respect the needs and preferences of classmates and instructors.



CONSERVATION BIOLOGY 2e, Figure 2.19
© 2019 Oxford University Press

Figure 4.8 in our textbook perfectly illustrates the implication of Rapoport's Rule known to many conservation biologists. With smaller species ranges near the equator, more species can coexist and therefore you find higher biodiversity as you move from higher latitudes to lower latitudes.

Based on P. D. Manton et al. 2014, *Trends Ecol Evol* 29:42-50, with data from C. N. Jenkins et al. 2013, *Proc Natl Acad Sci USA* 110: E2602-E2610.

SCIENCE

EDUARDO RAPOPORT: HE SHOULD BE IN OUR BOOK

Eduardo Rapoport (1927-2017) was an Argentinian ecologist known widely for his work in soil biology, invasive species ecology, urban ecology, and biogeography, and is best known for Rapoport's Rule. Rapoport's Rule states that latitudinal ranges of plants and animals are generally smaller at lower latitudes (i.e. near the equator) than at higher latitudes (i.e. closer to the poles). As a professional you may have the opportunity to attend national and international meetings and listen to a variety of presentations and speakers in your field. In my professional career, two of these among the hundreds stand out as truly special. In 1995, at the Annual Meetings of the American Society of Mammalogist in Burlington, Vermont, I heard Ernst Mayr (he was 91 at the time), one of the greatest evolutionary biologists of the 20th century, give an intimate talk on his career. In 2007, at the International Mammalogical Congress in Mendoza, Argentina, I heard Eduardo Rapoport (he was 80 at the time) give a talk in Spanish on his career as an ecologist, much of it living in exile in Venezuela. In both cases you could hear a pin drop. In both cases the audience hung on every word and understood that this was a once in a lifetime moment. I hope each of you have those moments in your careers.

JOBS

Top Skills Employers Want in College Graduates in 2022 (and how we can help)

INSIDE HIGHER ED (EXCERPTED FROM ARTICLE BY RACHAEL TOOR)

If we take seriously the problem of student debt, if we believe parents and students when they say that what they want out of a college degree is a good job (whatever that means to them), if we listen to what employers are saying about the disconnect between what students are learning in class and the competencies they need in the workforce, we might all start thinking about our jobs as faculty a little differently.

The core competencies identified by [NACE](#), the [National Association for Colleges and Employers](#), are communication, critical thinking, equity and inclusion, leadership, professionalism, teamwork, and technology.

That sounds to me a whole lot like general education goals.

Many faculty members see their role as exclusively to teach within their discipline and not to worry too much about what happens to students once they leave the nest. We've all seen what's happened in graduate education when professors believe only a mini-me version of themselves is worthy: the folks who don't win the job lottery end up out of academe and understandably bitter—and their numbers are only growing larger. sought-after attribute this year.

Employers say students don't know how to translate what they've learned in the classroom and in co-curricular activities into useful real-world skills. I have heard this from



Graduation Day: It's weird. You've been in school since you were six and now you have to get a real job. You've been practicing skills the entire time you were in college, but can you communicate those to a potential employer?

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people in investment banking, from Fortune 500 companies, law firms, community organizers, librarians, tech start-ups, marketing companies and publishers. The students who apply for these jobs come elite privates, regional state universities small liberal arts and community colleges.

That’s not the fault of university career services offices. Those departments, even though often understaffed and underfunded, offer a host of resources to help guide students toward meaningful next steps. They are managed by trained professionals with access to technological tools to help students figure out how to connect their interests to actual jobs, and they offer one-on-one coaching about the application process. But according to [data from NACE](#), the median number of students per professional staff member is 1,735.

Plus, many students on campuses do not take advantage of those offerings. Instead, they come to people they know—professors like me—for help with cover letters and résumés. And while I can comment on language, until recently I had no idea about how most résumés are read first by a version of R2-D2 and his little robot friends who make up automated tracking systems. If an applicant doesn’t include the right keywords in a résumé or cover letter, into the trash bin they go.

One of the things I’ve found in talking to employers is that they all say the same thing. When someone applies for a job right out of college, no matter how many skills or credentials they’ve managed to acquire, they’re still going to have to be trained to work in that particular place—whether it’s in engineering, community organizing or ranching. The main qualities I’ve been hearing employers say they want are humble, hungry and smart. They skip over young adults who are selling their own brand; they want employees who will make their jobs easier. They want to see a mind-set of humility, eagerness and curiosity. Those are, I hasten to point out, also key ingredients for academic success.

It’s time for all of us on campuses, not just the people in career services, to step up. What if we all focused on both academics *and* career readiness and we invested in making our campuses reflect that? If we embedded within our courses and co-curricular activities a focus on how to translate student experiences in ways that would apply in the world of work? Students love experiential learning, and many universities offer co-ops and internships. Faculty can help students understand how to understand and render in language those valuable opportunities. Universities can make it a priority with programmatic and coordinated backing.

Just as for recent grads, having the right the mind-set is the most important part of a job search, if faculty can start to think just a little differently about how we teach, if we do the work to understand how our students are being perceived when they try to enter the workforce, we will be better at helping them succeed.

Academic success and career readiness should go together like chocolate and peanut butter. At some institutions, they already do. I think it’s incumbent on all of us—especially those who know the back-breaking burden of student loans—to help our students get jobs.

From Rethinking the Faculty Role in Students’ Career Readiness by Rachael Toor – Inside Higher Ed, January 18, 2022

 NACE <small>NATIONAL ASSOCIATION OF COLLEGES AND EMPLOYERS</small> SOURCE: NACE 2022 JOB OUTLOOK REPORT	NACE CAREER COMPETENCY*	IMPORTANCE TO EMPLOYER
	Critical Thinking	98.5%
	Communication	98.5%
	Teamwork	97.7%
	Professionalism	86.9%
	Equity & Inclusion	85.4%
	Technology	81.5%
	Career & Self-Development	70.0%
	Leadership	58.5%
*Defined as: naceweb.org/career-readiness/competencies/career-readiness-defined		