

## CONSERVATION BIOLOGY 505

- Instructor:** Dr. Jeff Karron email: [karron@uwm.edu](mailto:karron@uwm.edu)
- Lecture times:** TUES & THURS 11:30 – 12:45 in Lapham N 101.  
*For information concerning cancellation of classes due to severe weather, please call 229-4444.*
- Office hours:** via Teams, by appointment.  
*I am also happy to answer questions immediately following each lecture.*
- Course description:** Genetic and ecological approaches to the conservation of biological diversity. Topics include biology of rare plants and animals, design of nature reserves, and restoration ecology.  
*For more information on the Department of Biological Sciences, please visit our web home page: <http://www.uwm.edu/Dept/Biology/>*
- Prerequisites:** Introductory Biology 150 & 152, Genetics 325 or equivalent.
- Required text:** Cardinale, Primack and Murdoch 2020. Conservation Biology. Oxford University Press. ISBN 9781605357140  
*Please complete all assigned reading prior to lecture !*

		<b>Lecture Topic</b>	<b>Reading</b>
Sept 6 (Tues)	Lec 1	<b>Introduction to Conservation Biology</b>	
Sept 8 (Thurs)	Lec 1b	continuation of Introductory lecture	Cardinale <i>et al.</i> chapters 1 & 2
Sept 13 (Tues)		Class discussion of assigned reading	Kiers <i>et al.</i> 2010
Sept 15 (Thurs)	Lec 2	<b>What is biological diversity and where is it found?</b>	Cardinale <i>et al.</i> chapter 3
Sept 20 (Tues)	Lec 3	<b>Loss of biodiversity</b>	Cardinale <i>et al.</i> chapter 4
Sept 22 (Thurs)		Class discussion of assigned reading	Valiente-Banuet <i>et al</i> 2015
Sept 27 (Tues)	Lec 4	<b>Vulnerability to extinction</b>	Cardinale <i>et al.</i> chapter 8
Sept 29 (Thurs)		Class discussion of assigned reading	Estrada <i>et al.</i> 2017 Otto <i>et al.</i> 2018
Oct 4 (Tues)	Lec 5	<b>Genetic biodiversity</b> Modelling genetic drift and effective population size	Cardinale <i>et al.</i> 405-420

	<b>Lecture Topic</b>	<b>Reading</b>
Oct 6 (Thurs)	Class discussion of assigned readings	Kramer & Havens 2009 Haig <i>et al.</i> 2015
Oct 11 (Tues)	<b>Lec 6 Population bottlenecks and the loss of genetic diversity</b>	
Oct 13 (Thurs)	Class discussion of assigned reading	Bellinger <i>et al.</i> 2003 Fant <i>et al.</i> 2016
Oct 18 (Tues)	<b>Lec 7 Inbreeding and inbreeding depression in small populations</b>	
Oct 20 (Thurs)	Classroom discussion – EXAM REVIEW	Complete sample midterm
Oct 23-25	<b>Exam 1 ( covers all lectures, discussions and reading material thru Oct 13 )</b>	
	<i>Exam will be available Sun Oct 23 at 1:00 PM. You will have 2 hours to answer the essay questions, but the exam is intended to take 75 min. Your completed exam must be submitted by 5:00 PM on Tuesday Oct 25.</i>	
	<i>(No lecture on Oct 25)</i>	
Oct 27 (Thurs))	<b>Lec 8 The demography of small populations (Mon) population viability analysis, Allee effects</b>	Cardinale <i>et al.</i> 405-440.
Nov 1 (Tues)	Class discussion of assigned reading	Kramer <i>et al.</i> 2017 Groom 1998
Nov 3 (Thurs)	<b>Lec 9 Invasions of natural communities by exotic species</b>	Cardinale <i>et al.</i> Chapter 11
Nov 8 (Tues)	Class discussion of assigned reading	Sakai <i>et al.</i> 2001
Nov 10 (Thurs)	<b>Lec 10 Application of island biogeographic principles to design of nature reserves</b>	Cardinale <i>et al.</i> Chapter 9
Nov 15 (Tues)	Class discussion of assigned reading	Whittaker <i>et al.</i> 2017
Nov 17 (Thurs)	<b>Lec 11 Limitations of the Endangered Species Act and hybridization between rare species and widespread relatives</b>	
Nov 22 (Tues)	Class discussion of assigned reading	Hirashiki <i>et al.</i> 2021
Nov 24 (Thurs)	Thanksgiving – no class	
Nov 29 (Tues)	<b>Lec 12 Edge effects; Restoration Ecology</b>	Ritchie <i>et al.</i> 2017
Dec 1 (Thurs)	Class discussion of assigned reading	Haddad <i>et al.</i> 2015

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Dec 6 (Tues) Class discussion – EXAM REVIEW

Dec 8 (Thurs) **Exam 2** ( *covers all lectures, discussions and reading material from Oct 18 – Dec 6* )

*Exam will be available from Thurs Dec 8 at 10:00 AM thru Sun Dec 11 at 5:00 PM. You will have 2 hours to answer the essay questions, but the exam is intended to take 75 min. Your completed exam must be submitted by 5:00 PM on Sunday Dec 11.*

Dec 13 no class

**Grades for undergraduates will be assigned as follows:**

Exam 1	35%
Exam 2	35%
Class participation	30%

*If you need special accommodations in order to meet any of the requirements of this course, please contact Dr. Karron as soon as possible.*

**Attendance and Class Participation:**

Students are expected to attend class regularly, and to actively participate in weekly class discussions.

If you are unable to attend class, please notify Professor Karron by email.

**Learning objectives for this course**

**Scope and focus:** This course explores the causes and consequences of the decline in biodiversity in natural communities. The first part of the course focuses on the genetic and ecological processes contributing to species extinction. The second part of the course addresses strategies for conserving natural communities and restoring ecological function in degraded habitats. The third part of the course addresses the management of habitats that are especially susceptible to human disturbance and degradation.

Students will read original research papers and reviews that highlight recent advances in this rapidly developing discipline.

This course addresses the following program objectives:

- 1) Students will gain experience reading and critiquing original research papers in conservation biology.
- 2) Students will interpret numerical and graphical data used in professional research.
- 3) Students will synthesize, integrate and effectively communicate scientific information both orally and in writing.
- 4) Students will learn how to incorporate conservation strategies into effective management practices.

### Statement of Time Investment

This 3-credit course meets for 3 hours of lecture per week during the semester. Students are expected to put in an additional 6 hours per week studying and working on assignments to achieve the learning goals of this course.

### UNIVERSITY AND DEPARTMENTAL POLICIES:

1. *Students with disabilities.* The Accessibility Resource Center at the University of Wisconsin Milwaukee is dedicated to providing equal access to students with disabilities in all academic, social, cultural and recreational programs. Please notify the Professor, and see this link: <http://uwm.edu/arc/>
2. *Religious observances.* Students who will miss class due to religious observances should make arrangements with the Professors or Lab TAs to make up missed work. <https://apps.uwm.edu/secu-policies/storage/other/SAAP%201-2.%20Accommodation%20of%20Religious%20Beliefs.pdf>
3. *Students called to active military duty.* If you are called to active military duty, please contact the Professors to make arrangements for accommodations for absences.

Students: <https://uwm.edu/onestop/students-called-to-active-duty/>

Employees: <https://www.wisconsin.edu/ohrwd/download/policies/ops/bn9.pdf>

4. *Incompletes.* A notation of "incomplete" may be given in lieu of a final grade to a student who has carried a subject successfully until the end of a semester but who, because of illness or other unusual and substantiated cause beyond the student's control, has been unable to take or complete the final examination or to complete some limited amount of term work. <https://apps.uwm.edu/secu-policies/storage/other/SAAP%201-13.%20Incomplete%20Grades.pdf>
5. *Discriminatory conduct.* Discriminatory conduct will not be tolerated by the University. It poisons the work and learning environment of the University and threatens the careers, educational experience, and well-being of students, faculty, and staff. <https://apps.uwm.edu/secu-policies/storage/other/SAAP%205-1.%20Discriminatory%20Conduct%20Policy.pdf>
6. *Title IX/Sexual Violence.* Title IX is a federal law that prohibits sex discrimination in education program or activities, and UWM policy prohibits such conduct (see Discriminatory Conduct, above). This includes sexual violence, which may include sexual harassment, sexual assault, relationship violence, and/or stalking in all educational programs and education-related areas. UWM strongly encourages its students to report any instance of sex discrimination to UWM's Title IX Coordinator ([titleix@uwm.edu](mailto:titleix@uwm.edu)). Whether or not a student wishes to report an incident of sexual violence, the Title IX Coordinator can connect students to resources at UWM and/or in the community including, but not limited to, victim advocacy, medical and counseling services, and/or law enforcement. For more information, please visit: <https://uwm.edu/sexual-assault/>.

7. *Academic misconduct.* Cheating on exams or plagiarism are violations of the academic honor code and carry severe sanctions, including failing a course or even suspension or dismissal from the University. <https://uwm.edu/deanofstudents/academic-misconduct-2/>
8. *Complaint procedures.* Students may direct complaints to the head of the academic unit or department in which the complaint occurs. If the complaint allegedly violates a specific university policy, it may be directed to the head of the department or academic unit in which the complaint occurred or to the appropriate university office responsible for enforcing the policy. <https://apps.uwm.edu/secu-policies/storage/other/SAAP%205-1.%20Discriminatory%20Conduct%20Policy.pdf>
9. *Grade appeal procedures.* A student may appeal a grade on the grounds that it is based on a capricious or arbitrary decision of the course instructor. Such an appeal shall follow the established procedures adopted by the department, college, or school in which the course resides or in the case of graduate students, the Graduate School. These procedures are available in writing from the respective department chairperson or the Academic Dean of the College/School. <https://apps.uwm.edu/secu-policies/storage/other/SAAP%201-10.%20Grade%20Appeals%20by%20Students.pdf>
10. *LGBT+ resources.* Faculty and staff can find resources to support inclusivity of students who identify as LGBT+ in the learning environment. <http://uwm.edu/lgbtrc/>
11. *Smoke and Tobacco-Free campus.* UWM prohibits smoking and the use of tobacco on all campus property. <https://apps.uwm.edu/secu-policies/storage/other/SAAP%2010-8.%20Smoke%20and%20Tobacco-Free%20Campus%20Policy.pdf>
12. *Synchronous Online Class Recording*

Our class sessions will be audio-visually recorded for students who are unable to attend at the scheduled time. Students who participate with their camera engaged or who utilize a profile image are agreeing to have their audio/video or image recorded. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded.
13. *Navigate Student Success Platform and Mobile App*

Students are encouraged to use a tool called Navigate. This tool can help you learn about academic resources, set up study groups in your courses, make appointments with your academic advisor, get reminders on important dates, and much more. In addition, Navigate allows instructors to send Progress Reports to students throughout the term, allowing for updates on your academic progress in a course in addition to your grade. You can log into the platform here: <https://uwmilwaukee.campus.eab.com/> or by finding the Navigate link under the Current Students tab on the [UWM home page](#). More information on how you can use Navigate and the app, including tutorials, can be found on [UWM's Navigate website](#).

**Panther Community Health and Safety Standards:** UWM has implemented health and safety protocols, taking into account recommendations by local, state, and national public health authorities, in response to the COVID-19 pandemic. As a member of our campus community, you are expected to abide by the Panther [Interim COVID-Related Health & Safety Policy](#), which was developed in accordance with public health guidelines. These standards apply to anyone who is physically present on campus, UWM grounds, or participating in a UWM-sponsored activity:

- UWM recommends that all individuals visiting UWM facilities wear face coverings while indoors.
- UWM recommends getting vaccinated for COVID-19 and getting the most recent booster shot available to you.
- UWM requires that you check daily for COVID-19 symptoms and not come to campus if you are feeling sick. If you are feeling sick, get tested for COVID-19 and quarantine until symptoms subside. Use the [CDC Quarantine and Isolation Calculator](#) to determine next steps.
- If you test positive for COVID-19, UWM requires that you self-report at the [Dean of Students Reporting Form](#). Use the [CDC Quarantine and Isolation Calculator](#) to determine next steps.

Additional details about student and employee expectations can be found on the [UWM COVID-19 webpage](#).