BL 419/519: CONSERVATION BIOLOGY
SPRING 2016
DOLAN E228, TR 11:00 AM — 12:15 PM

Instructor: Dr. Watling
Contact information: jwatling@jcu.edu (email); Dolan W243 (office)
Office hours: MW 10:00 am — 12:00 pm, R 2:00 — 5:00 pm, or by appointment

Course description

This course will include discussions of the primary literature and critical evaluation of real data to examine the scale of the biodiversity crisis, as well as it's causes and consequences. We will also consider various arguments for biodiversity conservation. Over the course of the semester, students will read widely from the primary scientific literature, prepare their CVs, apply for, and receive feedback on applications to real jobs in conservation science, and write a review paper or meta-analysis of a conservation-themed topic of their choosing.

Learning goals

Course learning goal	Biology learning goal	JCU learning goal
Describe the main drivers of biodiversity loss and mitigation strategies to minimize their impact[1,2]	Demonstrate a broad knowledge of environmental science and develop capacity in biology, chemistry, and Earth science	Demonstrate an integrative knowledge of human and natural worlds
Prepare a CV and application letter for a real job in conservation biology[3]	Demonstrate a broad knowledge of environmental science and develop capacity in biology, chemistry, and Earth science	Demonstrate an integrative knowledge of human and natural worlds; Communicate skillfully in multiple forms of expression
Critically analyze primary scientific literature and articulate a position on the paper during class discussions[2]	Demonstrate a broad knowledge of environmental science and develop capacity in biology, chemistry, and Earth science; Use critical thinking to evaluate and interpret biological phenomena; Collect and analyze scientific data and communicate its importance through effective oral and written presentation	Demonstrate an integrative knowledge of human and natural worlds; Communicate skillfully in multiple forms of expression; Apply innovative and creative thinking; Develop habits of critical analysis and aesthetic appreciation
Conduct original analysis of the primary literature in the format of a scientific journal article[4]	Demonstrate a broad knowledge of environmental science and develop capacity in biology, chemistry, and Earth science; Use critical thinking to evaluate and interpret biological phenomena; Collect and analyze scientific data and communicate its importance through effective oral and written presentation	Demonstrate an integrative knowledge of human and natural worlds; Communicate skillfully in multiple forms of expression; Apply innovative and creative thinking; Develop habits of critical analysis and aesthetic appreciation

Assessed via:
[1]Discussions [2]Exams [3]Job application [4]Final paper

Textbook

Primack, RB. 2014. *Essentials of Conservation Biology*, Sixth Edition.

Course website and communications

Class announcements, lecture slides and assignments will be posted to the course website at canvas.jcu.edu. I will post outlines of the lecture slides to the class website after each class meeting, but please do not use the slides as a substitute for taking notes in class. I will occasionally use the class website to provide supplemental materials, administer course activities, and distribute information about lectures and exams. Please check the website and your JCU email daily for updates about the class.

Attendance

The most important thing you can do to earn a good grade in this class is come to class. Chronic lateness or more than five unexcused absences from class may be grounds for receiving a failing grade regardless of your point total. Always come to class on time.

If you miss an exam without prior notification and documentation of a legitimate excused absence from one of the Assistant Deans of Arts and Sciences, you will not be permitted to take a makeup exam. This includes missing exams for professional interviews or work. If you are sick and unable to take an exam, you must contact me within 24 hours of the missed exam to schedule a make-up exam, and provide documentation of your illness in the form of a note from one of the Assistant Deans of Arts and Sciences. I will not allow make-up exams in any case if you do not contact me within 24 hours of the missed exam. Only one makeup exam is allowed, and I reserve the right to change the exam format for makeup exams.

Course activities

Job application

Conservation biology is an applied discipline, and I suspect many students are enrolled in the course because they hope to work in the conservation field someday. Therefore, all undergrads in the class will be required to update or create their CV and prepare an application for a job that interests them. You will prepare at least two drafts of your application letter based on feedback from myself and/or other students in the class. Undergraduates will be paired with graduate students for their evaluations, and graduate students will be responsible for providing their undergraduate applicants with critical constructive feedback on their job materials.

Paper discussions

Approximately every two weeks during the semester, we will read a pair of papers describing alternative perspectives on 'great debates' in conservation biology, including arguments for and against scientific collections, economic versus ethical perspectives on biodiversity preservation, and in-situ versus ex-situ conservation strategies. Students will rotate through the positions of discussion facilitator, recorder, and participant over the course of the semester.

Exams

There will be two exams over the course of the semester, a midterm and a final. The exams will involve the quantitative analysis of biodiversity data we will work with over the course of the semester. You will almost certainly perform better on the exams and find them easier to manage if you dedicate some time each week outside of class to work with your dataset.

Review Paper/Meta-analysis

Early in the semester, students will meet with me to identify a topic for which they will write a review paper (undergraduates) or conduct a meta-analysis of the primary literature (graduate students). Various landmarks over the course of the semester will be designed to keep students on track as they progress towards the completion of a publication-quality research paper at the end of the semester. All students will meet with me at least once after submitting a draft of the introduction to their paper for a one-on-one writing consultation. Students may be referred to the JCU Writing Center for additional consultation on the completion of their paper.

Assessment

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75 points Job application

There will be three assignments comprising this project, each of which is worth 25 points. Students will (1) prepare their CVs in a standard format, (2) draft a one-page initial application letter on which they will receive feedback from at least one graduate student evaluator, and (3) rewrite their application letter in light of the feedback received.

80 points Paper discussions

We will read about 16 papers over the course of the semester, for which students will receive up to five points each based on the quality with which they perform their roles as discussion facilitators, recorders, and participants.

200 points Exams

There will be a midterm and a final exam worth 100 points each.

500 points Review paper

Over the course of the semester, all students will be responsible for choosing a topic for their review (50 points), compiling a bibliography of at least 20 papers (150 points), preparing a draft introduction to their paper (50 points), preparing a first draft of the entire paper (100 points) and producing a final draft of a publication-quality journal article due at the end of the semester (150 points).

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40 points Job application

Each student will be responsible for providing a paragraph's worth of substantive feedback on CVs and applications letters for each of two undergraduate job applicants.

160 points Paper discussions

In addition to the 80 points received for facilitating, recording, or participating in discussions, graduate students will also receive up to 10 points for each of eight one-page written reflections on each pair of papers.

200 points Exams

500 points Meta-analysis

The timeline and point value for completion of the meta-analysis will be the same as for review papers, with the following landmarks: choosing a topic for the analysis (50

points), compiling a bibliography of at least 15 studies and producing a table with data extracted from selected studies (150 points), preparing a draft introduction of the meta-analysis (50 points), conducting a preliminary analysis of the data (100 points), and producing a publication-quality journal article due at the end of the semester (150 points).

Grades

Final grades will be calculated as the sum of points earned for each component of your grade, divided by the total number of possible points (855 for undergrads, 900 for grad students). For example, if an undergrad earns the following distribution of points:

65 points	job application
70 points	discussions
175 points	exams
450 points	review paper

their final grade would be calculated as 760/855 = 88.88. Your final grade will be converted to a letter according to the following scale:

A	93—100	B	83—86	C	73—76	D	60—66
A-	90—92	B-	80—82	C-	70—72	F	0—59
B+	87—89	C+	77—79	D+	67—69		

Class conduct

Please conduct yourself in a courteous and professional manner. This includes arriving to class on time and remaining for its duration. Please mute your cell phones and do not text during class.

Late or missed work

It is your responsibility to ensure that assignments are completed on time. Contact me in advance if you foresee a time-related conflict. Late work will not be accepted except in the case of a documentable emergency. I expect that you will be responsible about managing your time, and will be unlikely to grant exceptions for late work except in extreme cases.

Academic honesty

Students are expected to hold themselves to high standards of academic honesty. Activities such as cheating on an exam, unauthorized sharing of information, and plagiarism (including purchasing, borrowing or otherwise obtaining the work of others and submitting it as your own work) constitute violations of the academic honesty policy and will be dealt with as described in the JCU Student Handbook. A first violation of the academic honesty policy will result in a grade of 0 on the assignment in question. A second violation will result in a meeting with department chair and referral to the academic hearing committee.

Schedule of topics

Topic	Week	Date	Day	Chapter
Introduction/What is biodiversity?	1	19 Jan	T	1 & 2
Measuring biodiversity	1	21 Jan	R	2
Where is the world's biodiversity found?	2	26 Jan	T	3
Paper discussion: Scientific collections	2	28 Jan	R	
Extinction & vulnerability	3	2 Feb	T	7 & 8
Introduction to meta-analysis	3	4 Feb	R	
Habitat loss, fragmentation, and degradation	4	9 Feb	T	9
Paper discussion: Patch dynamics versus habitat amount	4	11 Feb	R	
Careers in Conservation Biology: CMNH	5	16 Feb	T	
Climate change	5	**18 Feb**	R	9
Overexploitation	6	23 Feb	T	10
Paper discussion: Trophy hunting	6	25 Feb	R	
Invasive species & disease	7	8 Mar	T	10
Paper discussion: Amphibian decline & probiotics	7	**10 Mar**	R	
Population biology	8	15 Mar	T	11 & 12
Viability of small populations	8	17 Mar	R	11 & 12
Careers in Conservation Biology: TBD	9	**22 Mar**	T	
Paper discussion: Minimum population size	9	31 Mar	R	
Marxan Tutorial	10	5 Apr	T	
Protected area design	10	7 Apr	R	16
Protected area management	11	**12 Apr**	T	17
Paper discussion: SLOSS debate	11	14 Apr	R	
Conservation outside protected areas	12	19 Apr	T	18
Careers in Conservation Biology: Zoos	12	21 Apr	R	
Paper discussion: In-situ versus ex-situ conservation	13	26 Apr	T	
Restoration ecology	13	**28 Apr**	R	19
Ethical value	14	3 May	T	4—6
Paper discussion: economics versus ethics	14	5 May	R	
FINAL EXAM: THURSDAY 12 MAY 10:00 – 11:50 AM				

Key dates (**in bold**) towards completion of papers are:
18 February: Review paper/meta-analysis description due
10 March: Bibliography & data table (grad students only) due
22 March: Draft introduction due
12 April: First draft of review paper/meta-analysis results due
28 April: Final papers due

Statement on discrimination, sexual harassment and bias

John Carroll University is committed to fostering a learning and working environment based upon open communication, mutual respect, and ethical and moral values consistent with Jesuit and Catholic traditions. The University seeks to provide an environment that is free of bias, discrimination, and harassment, including sexual harassment. If you have experienced sexual harassment/assault/misconduct based upon gender/sex/sexual orientation, and you share this with a faculty member, the faculty member must notify the Title IX Coordinator, Kendra Svilar, J.D., who will discuss options with you. She can be reached by email at ksvilar@jcu.edu or (216) 397-1559. For more information about your options and resources, please go to http://sites.jcu.edu/hr/pages/resourcespolicies/title-ix/.

If you have experienced bias or discrimination based on race, age, sex*, sexual orientation*, religion, ethnic or national origin, disability, military or veteran status, genetic information or any factor protected by law, you are encouraged to report this via the Bias Reporting System at **http://sites.jcu.edu/bias** to Dr. Terry Mills, Assistant Provost for Diversity and Inclusion, or at tmills@jcu.edu, or (216) 397-4455. For more information about the University commitment to diversity and inclusion, please see **http://sites.jcu.edu/diversity**.

*You can report concerns anonymously through the Bias Reporting System.

Academic resources

In accordance with federal law, if you have a documented disability (learning, psychological, sensory, physical, or medical) you may be eligible to request accommodations from the Office of Services for Students with Disabilities (SSD). To make a request for accommodations, please contact SSD Director Allison West at (216) 397-4967 or visit the SSD office, located in Room 7A, on the garden (lower) level of the Administration Building. Please keep in mind that accommodations are not retroactive so it is best to register with SSD at the beginning of each semester. Only those accommodations approved by SSD will be recognized by your instructors. Please contact SSD if you have further questions.

Disclaimer

Details of this syllabus are subject to change. Updates will be announced in class, via email, and/or on the course website.