



Biodiversity in a Changing World

IDS 2395 (Quest 2, Biological Science, International)

Spring 2024 (3 credits)

This course addresses one of the most complex, pressing issues of our time- how humans are altering the number, relative abundance, and distribution of species on Earth via changing land use, urbanization, globalization, and climate change. We will explore the patterns and the processes govern the global distribution of life on Earth and investigate methodologies used to study biodiversity from the level of genes to ecosystems. We will explore how the changes in biodiversity around the world impact critical ecosystem services including nutrient cycling, food production, disease transmission, and culture. Finally, we will interact with both local and international practitioners to discuss ways scientists and community partners are addressing these issues on both local and global scales. This class is recommended for students interested in understanding more clearly how we approach answering questions with science and the complexity of using science to create and implement policy.

Tuesdays (Period 5 & 6)
11:45 am - 1:30 pm

Thursdays (Period 5)
11:45 am - 12:35 pm

Location: 1031 Steinmetz

Prerequisite: None

Canvas:
Instructor Info:

Dr. Jennifer Weeks

jenweeks1@ufl.edu

(352) 273-3955

Office: 3103 Steinmetz Hall

Drop-In Hours:

Tuesdays, 1:45 -2:45 pm







Thursdays, 12:45-1:45 pm

Or, by appointment



Student Learning Outcomes

By the end of the course, students will be able to:

-  **Describe** global patterns of biodiversity and analyze processes that create and maintain biodiversity
-  **Utilize** different methodologies to sample and calculate diversity.
-  **Summarize** and evaluate research for evidence of anthropogenic activities altering biodiversity and, subsequently, ecosystem services.
-  Analyze and reflect on the ways in which approaches to measuring and making policy decisions about biodiversity are influenced by cultural, economic, political, and social systems and beliefs on local, regional, and global scales.
-  Critically reflect on course content in the context of their intellectual, personal, and professional development at UF and beyond.
-  Research a biodiversity hotspot and create a presentation to educate others about that region including detailed analysis of biodiversity threats as well as current or proposed mitigations and solutions.



Readings & Course Materials

Assigned readings will be made available in Canvas. Students may be asked to bring a printed/ digital copy of the day's assigned reading to class; failure to do so may result in loss of participation points.

Selected Readings to be provided to you in Canvas:

1. Excerpts from: Wood, Stedman-Edwards, and Mang. 2000. *The Root Causes of Biodiversity Loss*. Taylor & Francis, NY, USA.
2. Scheffers, B.R., L. De Meester, T.C.L. Bridge, A.A. Hoffmann, J.M. Pandolfi, R.T Corlett, S.H.M. Butchart, P. Pearce-Kelly, K.M. Kovacs, D. Dudgeon, M. Pacifici, C. Rondinini, W.B. Foden, T.G. Martin, C. Mora, D. Bickford, J.E.M. Watson. 2016. The broad footprint of climate change from genes to biomes to people. *Science* 354:aaf7671
3. Fletcher, R. J., et. al. 2018. Is habitat fragmentation good for biodiversity? *Biological Conservation* 226: 9-15.
4. Flory, S. L., et. al. 2018. Emerging pathogens can suppress invaders and promote native species recovery. *Biological Invasions* 20 (1), 5-8.
5. Magurran, A. E., & Dornelas, M. 2010. Biological diversity in a changing world. *Philosophical transactions of the Royal Society of London. Series B, Biological sciences*, 365(1558), 3593-7.
6. Keesing, F. et al. 2010. Impacts of biodiversity on the emergence and transmission of infectious diseases. *Nature* 468: 647-652.
7. Secretariat of the Convention on Biological Diversity (2014) *Global Biodiversity Outlook 4—Summary and Conclusions*. Montréal, 20 pages.
8. Turner, R. et al. 2007. Global Conservation of Biodiversity and Ecosystem Services. *BioScience*. 57. 868- 873. 9.1641/B571009. <https://www.conservation.org/publications/Pages/Will-Turner-Global-Biodiversity-Conservation-Alleviation-of-Poverty.aspx>
9. Turner, W.R., et al. 2012. Global Biodiversity Conservation and the Alleviation of Poverty. *BioScience* 62: 85-92. ISSN 0006-3568, electronic ISSN 1525-3244.



Communication & Conduct

Meeting Policy: If you need assistance with any aspect of the course, we encourage you to come to **office hours** (details on Page 1 of this syllabus). Alternatively, you can **schedule a 1-on-1 meeting** with Dr. Weeks. Outside of class and office hours, **email** is the preferred method of contact. We will do our best to respond to messages within 24 hours (not including weekends or holidays).

Canvas: Important announcements and updates will be regularly posted to the **course Canvas website**, so be sure to set your Canvas profile to ensure that you receive notifications and [check Canvas frequently!](#)

Email Accounts: It is UF policy that you use your **GatorLink account or Canvas** when emailing your instructors; we will not answer emails sent from other accounts (e.g., personal Gmail, etc).

Professional Conduct: All members of the class are expected to conduct themselves in a **professional and respectful manner** at all times. Please use appropriate etiquette when interacting with your peers and instructors, including during class, on Canvas, and via email. Students who behave disrespectfully or disruptively will be reported to the Dean of Students Office.



Grading

Attendance: To earn full points, be on time and attend 28 class periods (29 class days allowing for 1 discretionary absence). Each class day is worth 5 points for a total of 140 points.

Exit Slips

Students will be asked to turn in individual or group work from active learning exercises, answer questions, or provide a reflection at the end of certain class periods. There are 13 exit slips worth 20 points each for a total of 260 points over the course of the semester.

Assignments:

Paper Summaries

For each paper assigned for class discussion, students will provide written synopsis answers to questions provided for selected reading(s). Guidelines will be provided in the Canvas course site. Four paper summaries are worth 40 points each.

Sampling Lab Report

Students will complete this report as a culminating activity for the virtual forest sampling lab. The report guidelines and rubric will be posted to the Canvas site. This lab report is worth 40 points. \

Chilly Flies Lab Report

Global climate change will likely have substantial impacts on living organisms and it is critical to examine how genetic variation may either facilitate or limit the ability for organisms to adapt to global climate change through natural selection. In an inquiry-based classroom activity, students will use a chill-coma recovery assay to compare thermal tolerance among different lines of the fly *Drosophila melanogaster*. The objective of the activity is to provide students the opportunity to assess natural genetic variation in cold tolerance and discuss the implications for this variation to allow adaptation by natural selection to occur, thus facilitating persistence of the species despite a changing climate. This lab report is worth 40 points.

Case Studies

The purpose of a case study is to walk the audience through a situation where a problem is presented, background information provided, and a description of the solution (or potential solution) given. Students will work through several case studies involving biodiversity, climate change, epidemiology, and conservation.

Group Project:

Students will research a biodiversity hotspot area and create a presentation to present in class on the region. Detailed instructions and rubric are available in the Canvas course site. This presentation is worth 200 points.

Extra Credit:

There will be a few opportunities for extra credit throughout the semester announced in class. There will not be additional opportunities at the end of the semester.

Submitting assignments: Each assignment has instructions on whether it is to be submitted in person or electronically via Canvas.

Grading Policies

The course is scored out of **1000 points**, distributed as follows:

<u>Point Breakdown (1000 points)</u>	<u>Points [% of total grade]</u>
Attendance [28 meetings (1 discretionary absence) @ 5 pts.]	140 points [14%]
13 Exit Slips (Questions/reflections turned in at the end of class)	260 points (20 pts/ea) [26%]
10 Weekly Assignments (summaries, reports, or case studies)	400 points (40 pts/ea) [40%]
Biodiversity Hot Spot Group Project	200 points [20%]

I record your points on all assignments over the course of the semester in the Canvas gradebook, which translates total points into a letter grade using the grading scale below.

POINTS:

930 = A	730 = C
900 = A-	700 = C-
870 = B+	670 = D+
830 = B	630 = D
800 = B-	600 = D-
770 = C+	below 600 = E

Notes:

1. A minimum grade of a C is required for General Education credit
2. The instructor **DOES NOT round up grades**– requests to do so will not be considered. You must earn the number of points listed above to earn the grade.

For current UF policies on assigning grade points, consult the following policy website:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Attendance & Participation

Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at: <https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies>.

The learning experience is greatest when everyone in the class is present and contributes; if you are absent, you will not be able to share your insights during class or benefit from the insights of your peers and instructors. Thus, all students are expected to **attend every class session on time** and **stay for the entire session**. Students are also expected to be **fully prepared for and engaged** in each session– this includes completing all required readings/videos, submitting all assignments

on time, paying attention during class, and actively participating in all class activities. Participation in our class sessions is worth **140 points (≈14% of your final course grade)**. Your participation grade will be calculated based on the percentage of class sessions in which you are present for the entire time and complete the assigned in-class activities (to be turned in at the end of each class).

Since this is a **face-to-face course**, students will not have the option to join remotely via Zoom under any circumstances. The instructor will not record the class sessions.

Late Work & Make-Up Assignments / Exams

Policy on Late Work: All assignments are due **by the date and time indicated on the assignment page in Canvas**.

Late Work: Late work is accepted but loses 10% of credit for each day. To be excused from submitting work at the assigned time, you must confer with the instructor **in advance** and/or meet the UF standards for an excused absence.

Make-Up Assignments: In the case of excused absences, contact the instructor as soon as possible to discuss options for making up the work that you missed. You must also submit **appropriate documentation** of your emergency in a timely manner; you can do so via the official **Instructor Notification portal**: <https://care.dso.ufl.edu/instructor-notifications>.

Make-up assignments will *not* be provided for students who miss class for unexcused absences.

Course Schedule

Below is a tentative schedule of topics & assignments for the semester- see Canvas for the most up-to-date deadlines for assignments!

Week	Dates	Topics	Assignments Due
1	Jan. 9 (Tu) Jan. 11 (Th)	Course Introduction Discussion - Biodiversity Hot Spots	
2	Jan. 16 (Tu) Jan. 18 (Th)	Distribution of biodiversity: patterns and processes & Discussion Patterns and Processes	Assignment 1: Paper Summary Exit Slip 1
3	Jan. 23 (Tu) Jan. 25 (Th)	Cataloging biodiversity Florida Museum of Natural History Field Trip Case Study	Exit Slip 2: Field Trip Assignment 2: Hidden in Plain Sight
4	Jan. 30 (Tu) Feb. 1 (Th)	Biodiversity metrics - sampling and calculating diversity from samples Virtual Forest Lab Discussion	Exit Slip 3: Biodiversity Metrics Assignment 3: Virtual Forest Lab

5	Feb. 6 (Tu) Feb. 8 (Th)	Interdependence - Biodiversity and ecological networks Case: Who Set the Moose Loose	Exit Slip 4: Networks Assignment 4: Moose Loose Case
6	Feb. 13 (Tu) Feb. 15 (Th)	Guest Lecture: Dr. Andrea Lucky Taxonomy in conservation Climate Change and biodiversity	Exit Slip 5: Lucky Exit Slip 6: Climate Change
7	Feb. 20 (Tu) Feb. 22 (Th)	Discussion: Scheffers, et. al. 2016. Guest Lecture: Dr. Brett Scheffers	Assignment 5: Paper Summary Exit Slip 7: Scheffers
8	Feb. 27 (Tu) Feb. 29 (Th)	Habitat Fragmentation: Lecture and Discussion Guest Lecture: Rob Fletcher	Assignment 6: Paper Summary Exit Slip 8: Fletcher
9	Mar. 5 (Tu) Mar. 7 (Th)	Biodiversity and Public Health Discussion: Keesing	Exit Slip 9: Public Health Assignment 7: Paper Summary
10	Mar. 12 (Tu) Mar. 14 (Th)	Spring Break- NO CLASS!	
11	Mar. 19 (Tu) Mar. 21 (Th)	Case: Dilution Effect Case: Dilution Effect	Assignment 8: Dilution Case
12	Mar. 26 (Tu) Mar. 28 (Th)	Chill Coma Lab Chill Coma Lab, Group Project Planning	Assignment 9: Chill Coma Lab
13	Apr. 2 (Tu) Apr. 4 (Th)	Group Project Planning & Case Study Biodiversity conservation and the global community Guest Lecturer: Dr. Laure Katz, Conservation International	Assignment 10: Patagonia Land Grab Exit Slip 10: Katz
14	Apr. 9 (Tu) Apr. 11 (Th)	Group Project Presentations	Exit Slip 11 Exit Slip 12
15	Apr. 16 (Tu) Apr. 18 (Th)	Group Project Presentations	Exit Slip 13 Exit Slip 14
16	Apr. 23 (Tu)	Course Wrap-Up	Exit Slip 15
Finals Week	May 1 (M)	NO FINAL	

* This schedule may be adjusted during the semester to accommodate opportunities, disruptions, and other circumstances. These changes will be communicated clearly via Canvas and in class.



Policy on Academic Honesty & Integrity

As a student at the University of Florida, you have committed yourself to uphold the **Honor Code**, which includes the following pledge: *"We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity."* You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: *"On my honor, I have neither given nor received unauthorized aid in doing this assignment."*

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g., assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: <http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code>.

Instructor's note: Any action that **subverts the learning goals** of the course (or a particular course activity) will be treated as academic misconduct and reported to the Dean of Students Office. This includes- but is not limited to- cheating or assisting others in cheating, plagiarism (i.e., misrepresenting someone else's work as your own, whether it is copied directly or paraphrased), self-plagiarism (i.e., copying/reusing work that you have submitted previously), using ChatGPT or other AI tools for assignments without instructor permission, collaborating with others when it is not permitted, fabricating data, lying to an instructor, and bad faith attempts to undermine the intent of a learning activity. In addition to being reported to the Dean of Students Office, a student will earn a grade of 0 on any assignment that is plagiarized or that otherwise violates these academic honesty policies. This 0 grade is irreversible- it cannot be dropped and the assignment cannot be resubmitted for a different grade. After the first offense, any subsequent incidents of plagiarism or academic honesty will result in an automatic E (= failing grade) in the course. Please see the **Guide to Academic Honesty & Integrity** on Canvas for more information.



Accommodations for Students with Disabilities

The **Disability Resource Center** coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services, and mediating faculty-student disability related issues. Students requesting classroom

accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation.

Disability Resource Center

001 Reid Hall

(352) 392-8565 ♦ <https://disability.ufl.edu>



Campus Helping Resources

Students experiencing crises or personal problems that interfere with their general wellbeing are encouraged to utilize the university's counseling resources. **The Counseling & Wellness Center** provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance:

University Counseling & Wellness Center

Counseling Services, Groups and Workshops, Outreach and Consultation, Self-Help Library, Wellness Coaching

3190 Radio Road ♦ (352) 392-1575 ♦ <https://counseling.ufl.edu>

Other campus resources include:

U Matter, We Care: <http://umatter.ufl.edu>

Academic Resources (includes tutoring services, study skills workshops, 1-on-1 consultations, and more): <https://academicresources.clas.ufl.edu>

Career Connections Center: Reitz Student Union- First Floor; (352) 392-1601;
<http://career.ufl.edu>

Student Success Initiative: <http://studentsuccess.ufl.edu>

Student Complaints: Complaints regarding on-campus courses may be filed at <https://sccr.dso.ufl.edu/policies/student-honor-code-studentconduct-code>. For online courses, please see <https://distance.ufl.edu/getting-help/student-complaint-process>.



Policy on Recording Class Sessions

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are: (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and an instructor during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third-party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.



Use of Electronic Devices

You may use personal electronic devices such as laptops or tablets in class, unless otherwise noted by the instructor. However, it is your responsibility to make sure that you use your devices in a **professional and courteous manner**. This includes:

- Limiting device use only to activities that are **directly related to your learning of course material**, such as taking notes or following along with the lecture slides. Using your devices for any other purpose is not allowed in the classroom; doing so is disrespectful to the instructor, distracting to your fellow students, and robs you of a quality learning experience.
- Keeping your devices **muted at all times** to prevent disrupting others around you.
- Quietly stepping out into the hall if you must take a call or contact someone. I understand that emergencies can happen and will not prevent you from attending to them, but I also ask that you try to minimize disruptions to your peers.

If your device use is disruptive or inappropriate, you will be asked to put away your device. Students who repeatedly violate this policy will no longer be allowed to use devices in class and may be reported to the Dean of Students Office.



Software Use

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.



Course Evaluations

Student assessment of instruction is an important part of efforts to improve teaching and learning. At the end of the semester, students are expected to provide feedback on the quality of instruction in this course using a standard set of university and college criteria. Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via **GatorEvals**. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students>. Students will be notified when the evaluation period opens and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl>. Summaries of course evaluation results are available to students at: <https://gatorevals.aa.ufl.edu/public-results>.

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It is your responsibility to ensure that you fully understand the policies outlined in this syllabus as well as the policies of the university as they relate to this course. By remaining enrolled in this course, you agree that you have read and understood all of these policies and that you will be held accountable to them.

At their discretion, the instructors may change aspects of the course during the semester to accommodate new opportunities, unforeseen disruptions, or other circumstances. These changes will be communicated clearly in class and through Canvas. The current version of the syllabus will always be available on our course's Canvas website. It is your responsibility to ensure that you are following the most recent version of the syllabus.

If you have any questions, please contact the instructors as soon as possible (preferably at the beginning of the course)!