FNR 6668 Natural Resources in a Changing Climate

1 Course Overview

Course description:
Our collective focus has been on protecting natural resources as they are, restoring them to what they were, or using them based on past experience. The world is changing. We need to reconsider our objectives and the tools we use to meet them. This course will explore conservation and management tools and their vulnerabilities to global climate change (GCC), how they can be implemented in new ways to maintain or increase their effectiveness, options for integrating the needs of humans and natural resources, and how governance mechanisms might be improved to support adaptation efforts. Engage in interactive discussions and a customizable project to deepen understanding and communication of climate issues.

- 3 Credits
- Spring semester
- Format: Online, asynchronous
- http://elearning.ufl.edu/

Prerequisites: N/A

Instructor: Dr. Shirley Baker

- Contact instructions – Please use the Canvas message/Inbox feature for fastest response.
- Office hours: Virtual (Zoom), Thursdays at 9am or by appointment.
- Phone: 352-273-3627 (office), 352-213-3808 (cell)

Teaching Assistant: Genhong Gao

- Contact instructions – Please use the Canvas message/Inbox feature for fastest response.
- Office hours: By appointment.
- Phone: 954-218-4962

Textbook(s) and/or readings: There is no required text for the course. Online readings will be provided for each learning topic.

2 Learning Outcomes

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

- Explain the mechanisms and symptoms of climate change.
- Describe the impacts of climate change on species, ecosystems, and habitats.
- Analyze the vulnerability of natural resources to climate change.
- Compare adaptation strategies to reduce vulnerability of natural resources to climate change.
- Evaluate common climate change adaptation strategies for natural resource management and conservation.

3 Course Logistics

Students may access lectures, assignments, readings, and supporting materials through the course Canvas site as they become available.

Class meeting times This course is asynchronous.

Technology Requirements:

- A computer or mobile device with high-speed internet connection.
- A webcam, headset and/or microphone, and speakers.
- Latest version of web browser. Canvas supports only the two most recent versions of any given browser.
- Installation of proctoring software may be required and will be provided if so.

3.1 Description of Assessments & Activities

For all assignments, see instructions and grading rubric in Canvas for expectations. Relative points assigned to each activity are based on the depth and importance of the assignments. Quizzes ensure foundational knowledge, while Perusall assignments encourage regular engagement and collaborative learning. The final project, and scaffolded assignments leading up to it, are heavily weighted to reflect the effort and synthesis of knowledge expected in a graduate-level course.

Introduction: 5 points (5% of grade). Please introduce yourself in the Canvas Discussion set up for that purpose. Read and comment on your peers' introductions.

Quizzes: 7 @ 2 points each (14% of grade). Quizzes will be conducted via Canvas every two weeks. They will be multiple-choice questions, short answers, and brief essays. While quizzes are "open notes," they will challenge you to think critically, integrate information, and apply interdisciplinary concepts. Quizzes will close on the specified dates.

Perusall: 12 @ 2 points each (24% of grade). This course uses Perusall, a collaborative reading and annotation platform, to enhance your engagement with course materials and promote scholarly discussion. Your contributions on Perusall are an essential part of the learning experience.

Choose Your Own Adventure (CYOA). Throughout the semester, you will focus on a chosen topic, culminating in a final project. This scaffolded assignment includes six components. See Canvas assignment descriptions and grading rubrics for further instructions and expectations.

1. **CYOA Topic Selection: 1 @ 5 points (5% of grade).** You will choose a specific contemporary issue within climate change and natural resources. Choose a topic that directly aligns with your academic interests or professional goals.
2. **CYOA Annotated Bibliography: 1 @ 15 points (15% of grade).** You will begin building a foundation of research through an annotated bibliography. Compile a list of at least 20 scholarly sources (journal articles, books, reports) related to your chosen topic. For each source, provide an informative summary of the main points, an evaluative assessment, and a discussion of the relevance to your topic. See Canvas for examples.

3. **CYOA Project Proposal: 1 @ 5 points (5% of grade).** Now that you have compiled an annotated bibliography on a topic, you will propose the production of a scientific communication product. Write a proposal outlining the significance of your chosen focus, your intended audience, learning objectives for your audience, and the medium you will use. Choose a medium you have not used before! It could be an infographic, podcast, video, magazine or news article, blog, map, interview, exhibit, comic, lesson plan, children's book, TED talk, demonstration, briefing, training, community presentation, etc. See Canvas for examples.

4. **CYOA Final Project: 1 @ 25 points (25% of grade).** Your final project will be submitted in Canvas and posted in the Week 13 Module for your peers to view.

Final Project Discussions: 1 @ 7 points (7% of grade). Students will view the Projects of their peers, ask questions, and post comments in the Discussion set up for each student.

3.2 Grades & Grading Scale

Introduction	5 points
Quizzes	14 points
Perusall	24 points
CYOA Topic Selection	5 points
CYOA Annotated Bibliography	15 points
CYOA Project Proposal	5 points
CYOA Final Project	25 points
Final Project Discussions	7 points
TOTAL	**100 points**

For information on current UF policies for assigning grade points, see
Ugrad https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx
Grad https://catalog.ufl.edu/graduate/regulations/#text

Grading Scale (%)
A 100% to 94%
A- 93.99% to 90%
B+ 89.99% to 87%
B 86.99% to 84%
B- 83.99% to 80%
C+ 79.99% to 77%
C 76.99% to 74%
C- 73.99% to 70%
D+ 69.99% to 67%
D 66.99% to 64%
D- 63.99% to 61%
E 60.99% to 0%

4 Learning Content

Schedule			
Week	**Date**	**Topic**	**Assignments Due**
1	13 Jan	**Climate 101** • Earth's climate system	
2	20 Jan	**Changing Climate** • Climate models • CO_2 emissions models • Global temperature change • Changes in precipitation	**Due 26 Jan** Introduction Quiz, Week 1 Perusall, Week 2
3	27 Jan	**Changing Climate** • Extreme events • Cryosphere • Ocean acidification • Social and economic impacts	**Due 2 Feb** Perusall, Week 3 CYOA Topic Selection
1 Feb – First day of Black History Month			
4	3 Feb	**Impacts on species** • Overview • Phenology	**Due Feb 2** Quiz, Weeks 2 and 3 Perusall, Week 4
5	10 Feb	**Impacts on species** • Species distribution models • Range shifts • Extinctions	**Due 16 Feb** Perusall, Week 5
6	17 Feb	**Impacts on species** • Models • Experimentation	**Due 23 Feb** Quiz, Weeks 4 and 5 Perusall, Week 6 CYOA Annotated Bibliography
7	24 Feb	**Impacts on ecosystems** • Ecosystem services • Tropical forests • Temperate forests	**Due 2 Mar** Perusall, Week 7 CYOA Project Proposal
1 Mar – First day of Women's History Month			
8	3 Mar	**Impacts on ecosystems** • Marine ecosystems	**Due 9 Mar** Quiz, Weeks 6 and 7 Perusall, Week 8
9	10 Mar	**Adaptive governance and management**	**Due 23 Mar** Perusall, Week 9
17-21 Mar - Spring Break			
10	24 Mar	**Vulnerability assessment** • Overview • Sensitivity, exposure, adaptive capacity	**Due 30 Mar** Quiz, Weeks 8 and 9 Perusall, Week 10
11	31 Mar	**Vulnerability assessment** • The CCVI tool • Case studies	**Due 6 Apr** Perusall, Week 11

12	7 Apr	**Adaptation strategies** • Overview • Protected areas	**Due 13 Apr** Quiz, Weeks 10 and 11 Perusall, Week 12 CYOA Final Project
13	14 Apr	**Adaptation strategies** • Connectivity • Threatened species • Case studies	**Due 20 Apr** Perusall, Week 13
14	21 Apr	**Adaptation strategies** • Case studies	**Due 23 Apr** Quiz, Weeks 12 and 13 Final Project Discussions

5 Policies and Requirements

This course plan and syllabus are subject to change in response to student and instructor needs. Any changes will be clearly communicated in advance through Canvas.

5.1 Attendance, Late Submissions & Make-up Requests

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/.

5.2 Communication Courtesy and Professionalism

Just as in any professional environment, meaningful and constructive dialogue is expected in this class and requires a degree of mutual respect, willingness to listen, and tolerance of opposing points of view. **Respect for individual differences and alternative viewpoints will be maintained in this class at all times.** All members of the class are expected to follow rules of common courtesy, decency, and civility in all interactions. Failure to do so will not be tolerated and may result in loss of participation points and/or referral to the Dean of Students' Office.

5.3 Semester Evaluation Process

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/.

5.4 Academic Honesty Policy

UF students are bound by The Honor Pledge which states "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students 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." The Conduct Code specifies a number of behaviors that are in violation of this code and the possible sanctions. See the UF Conduct Code website for more information. If you have any questions or concerns, please consult with the instructor or TAs in this class.

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). 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: https://policy.ufl.edu/regulation/4-040/

5.5 Inclusive Learning Environment

This course embraces the University of Florida's Non-Discrimination Policy, which reads, *The University shall actively promote equal opportunity policies and practices conforming to laws against discrimination. The University is committed to non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, gender identity and expression, marital status, national origin, political opinions or affiliations, genetic information and veteran status as protected under the Vietnam Era Veterans' Readjustment Assistance Act.*

5.6 Privacy Statement

Our class sessions may be audio visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

5.7 In-class recordings

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 education 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 deliver by an 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 presentation 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 the faculty or guest lecturer during a class session.

5.8 Services for Students with Disabilities:

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center. See the "Get Started With the DRC" webpage on the Disability Resource Center site https://disability.ufl.edu/get-started/. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

5.9 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.

6 Campus Helping Resources

6.1 Whole Gator App

The Whole Gator and website and app connects UF students with resources dedicated to supporting overall health and well-being. In addition to many of the resources below it also has strategies to practice self-care. https://one.uf.edu/whole-gator/topics

6.2 Health and Wellness

- U Matter, We Care: If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit U Matter, We Care website to refer or report a concern and a team member will reach out to the student in distress.
- Counseling and Wellness Center: Visit the Counseling and Wellness Center website or call 352-392-1575 for information on crisis services as well as non- crisis services.
- Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need, or visit the Student Health Care Center website.
- University Police Department: Visit UF Police Department website or call 352-392-1111 (or 9-1-1 for emergencies).
- UF Health Shands Emergency Room / Trauma Center: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; Visit the UF Health Emergency Room and Trauma Center
  website.
- GatorWell Health Promotion Services: For prevention services focused on optimal wellbeing, including Wellness Coaching for Academic Success, visit the GatorWell website or call 352-273- 4450.
- Student Success Initiative, http://studentsuccess.ufl.edu

6.3 Academic Resources

- E-learning technical support: Contact the UF Computing Help Desk at 352-392-4357 or via e-mail at helpdesk@ufl.edu.
- Career Connections Center: Reitz Union Suite 1300, 352-392- 1601. Career assistance and counseling services.
- Library Support: Various ways to receive assistance with respect to using the libraries or finding resources. Call 866-281-6309 or email ask@ufl.libanswers.com for more information.
- Teaching Center: 1317 Turlington Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring.
- Writing Studio: Daytime (9:30am-3:30pm): 2215 Turlington Hall, 352-846-1138 | Evening (5:00pm-

7:00pm): 1545 W University Avenue (Library West, Rm. 339). Help brainstorming, formatting, and writing papers.

6.4 Student Complaints

- Academic Complaints: Office of the Ombuds; Visit the Complaint Portal webpage for more information.
- Enrollment Management Complaints (Registrar, Financial Aid, Admissions): View the Student Complaint Procedure webpage for more information.
- Residential Course: https://www.ombuds.ufl.edu/complaint-portal/
- Online Course: https://pfs.tnt.aa.ufl.edu/state-authorization-status/#student-complaint

7 Reading List

Examples of assigned readings:

- Foden, W.B., et al. 2018. Climate change vulnerability assessment of species. WIREs Climate Change. DOI: 10.1002/wcc.551
- Gattuso, J.-P., et al. 2018. Ocean solutions to address climate change and its effects on marine ecosystems. Frontiers in marine science 5: 337.
- Pecl, G.T., et al. 2017. Biodiversity redistribution under climate change: Impacts on ecosystems and human well-being. Science 355 (1389).
- Mora, C., et al. 2018. Broad threat to humanity from cumulative climate hazards intensified by greenhouse gas emissions. Nature Climate Change 8: 1062-1071.
- Morecraft, M.D., et al. 2019. Measuring the success of climate change adaptation and mitigation in terrestrial ecosystems. Science 366. DOI: 10.1126/science.aaw9256.
- Scheffers, B.R. et al. 2016. The broad footprint of climate change, from genes to biomes to people. Science 354(6312), aaf7671.
- Schuurman, G.W., et al. 2022. Navigating ecological transformation: Resist-Accept-Direct as a path to a new resource management paradigm. BioScience 72 (1): 16-29.