Course content

Bioclimatology is the study of the connection between living organisms and climate. This 3-credit graduate course is designed for students interested in seeking answers to questions such as:

- What are the fundamental ecosystem-relevant aspects of the climate system?
- What are the basic climate-relevant functions of organisms and ecosystems?
- How do the two interact and how does changing land use and climate alter these interactions?

Grading

Short problem sets and literature review response papers – 30%
Final group project (proposal 10% / report 10% / presentation 10%) – 30%
Two exams (20% each) – 40%

Course Structure

Classes will consist of standard lectures, and interactive discussion is encouraged. On most Thursdays, in addition to lecture, we will either review current and classical literature in bioclimatology or the most recently assigned problem set. Students are encouraged to work on the problem sets together and suggest literature for review. When doing literature reviews, every student will submit a one page response paper.

The final project will be a small group (3-4 people) integrative analysis of ecoclimatological data. The nature of the project will be selected through an in-class proposal competition. Final results will be presented in a group conference extended abstract and oral presentation at the end of semester. More details will be provided early in the semester.
Course Calendar

Part I. Climate System
Week 1  1/18; 1/20  Introduction to ecological climatology and system dynamics
Week 2  1/25; 1/27  Physics of the climate system
        NO CLASS TUE 1/25
Week 3  2/1; 2/3  Dynamics of the climate system
        NO CLASS TUE 2/1
Week 4  2/8; 2/10  General atmosphere and ocean circulation
Week 5  2/15; 2/17  Feedbacks, stability, and trends

Part II. Ecosystems and Climate
Week 6  2/22; 2/24  Ecosystems and biomes
        THU 2/24  Exam I
Week 7  3/1; 3/3  Ecosystem energetics and energetics
        THU 3/3  Research proposal due
Week 8  3/8; 3/10  Ecosystem dynamics
Break  3/15; 3/17  SPRING BREAK
Week 9  3/22; 3/24  Ecosystem-ocean-atmosphere interaction

Part III. Biogeochemistry and Global Interactions
Week 10 3/29; 3/31  Global biogeochemical cycling
Week 11 4/5; 4/7  Biogeochemistry and climate
Week 12 4/12; 4/14  Ecohydrology and climate
        THU 4/14  Exam II
Week 13 4/19; 4/21  Anthropogenic effects and ecosystem resilience

Part IV. Group Conference and Conclusion
Week 14 4/26; 4/28  Final presentations
Week 15 5/3; 5/5  Final presentations and Conclusion
        THU 5/5  Research paper due

NO FINAL

Accommodation Policy
Campus policy: “We believe in the right of all students who are enrolled at the University of Wisconsin-Madison to full and equal educational opportunity. Disability should not be the basis for exclusion from educational programs. All students are entitled to an accessible, accommodating, and supportive teaching and learning environment. … Students are expected to inform faculty, in a timely manner, of their need for special instructional accommodations.”

Students requiring class accommodations due to a learning or physical disability must present documentation from the McBurney Disability Resource Center (http://www.mcburney.wisc.edu/; 608-263-2741, Middleton Bldg, 1305 Linden Dr) in the first week of class. Accommodations will be made in consultation with the McBurney Center.

Students who require temporary accommodations due to medical or psychological reasons should acquire documentation from University Health Services. Counseling is available from Counseling Services, University Health Services (http://www.uhs.wisc.edu; 608-265-5600, 333 East Campus Mall).