AOS/IES 520

Spring 2008 BIOCLIMATOLOGY

3 credits

MWF 8:50-9:40 am AOSS 811

Professor Ankur Desai 265-9201 1549 AOSS

Email: desai@aos.wisc.edu

Office Hours: Tue and Wed 12-1 or by appointment

Web page: https://learnuw.wisc.edu/ (login with your NetID to access course)

Course Materials

Required:

Bonan, Gordan. 2008. *Ecological Climatology: Concepts and Applications*, 2nd edition. Cambridge Press. ISBN: 978-0-521-69319-6.

Recommended:

Hartmann, Dennis. 1994. *Global Physical Climatology*. Academic Press. ISBN: 978-0-123-28530-0. Chapin III, F. Stuart. 2004. *Principles of Terrestrial Ecosystem Ecology*. Springer. ISBN: 978-0-387-95443-1

All books are available at University Bookstore and on reserve at the SSEC Library (3rd floor AOSS)

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 -20%Final group project (proposal 10% / report 20% / presentation 10%) -40%Two exams (20% each) -40%

Course Structure

Monday and Wednesday classes will consist of standard lectures, and interactive discussion is encouraged. On most Fridays, 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	1/21-1/23	Introduction to ecological climatology			
Week 2	1/26-1/30	Physics of the climate system			
Week 3	2/2-2/6	Dynamics of the climate system			
Week 4	2/9-2/13	General atmosphere and ocean circulation			
Week 5	2/16-2/20	Feedbacks, stability, and trends			
NO CLASS WED 2/18 and FRI 2/20					

Part II. Ecosystems and Climate

Week 6	2/23-3/27	Ecosystems and biomes
WED	2/25 Exam	I
Week 7	3/2-3/6	Ecosystem dynamics and energetics
MON	V 3/2 Resea	rch proposal due
Week 8	3/9-3/13	Land-atmosphere interaction
Break	3/16-3/20	SPRING BREAK
Week 9	3/23-3/27	Hydrologic cycles and ocean-atmosphere interaction

Part III. Biogeochemistry and Global Interactions

Week 10	3/30-4	/3	Global biogeochemical cycling
Week 11	4/6-4/1	10	Ecosystems, biogeochemistry, and climate
Week 12	2 4/13-4	/17	Ecosystem-climate sensitivity and feedbacks
Week 13	3 4/20-4	/24	Anthropogenic effects and ecosystem resilience
F	FRI 4/24	Exam II	

Part IV. Group Conference and Conclusion

Week 14	4/27-5/1	Final presentations
Week 15	5/4-5/8	Final presentations and Conclusion
FRI	5/8 Resear	rch paper due
NO EINAI		

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).