Oregon State University
Ecampus

Course Name: Global Environmental Change: Using Data to Inform Decisions

Course Number: BEE 411/511

Credits: 3 Credits

Course Description

Students will explore global environmental change questions using an online data sharing and mapping platform, Data Basin (www.databasin.org). This course will guide students through 1) an introduction to geographic information resources (GIS) and online mapping resources, 2) an exploration and critique of conservation data and information using on-line tools and; 3) a practical application developing an approach and gathering spatial datasets to address a global environmental change question.

Communications

Please post all course-related questions in the Course Blog so that the whole class may benefit from our conversation. Please email your instructor for matters of a personal nature. The instructor will reply to course-related questions and email within 24-48 hours.

Technical Assistance

If you experience computer difficulties, need help downloading a browser or plug-in, assistance logging into the course, or if you experience any errors or problems while in your online course, contact the OSU Help Desk for assistance. You can call (541) 737-3474, email osuhelpdesk@oregonstate.edu or visit the OSU Computer Helpdesk online.

Learning Resources

- Articles
- Handouts
- Computer speakers/microphone or headset

Canvas
The course will be delivered via Canvas where you will interact with your classmates and with your instructor. Within the course Canvas site you will access the learning materials, such as the syllabus, class discussions, assignments, projects, and quizzes. To preview how an online course works, visit the Ecampus Course Demo. For technical assistance, please visit Ecampus Technical Help.

Measurable Student Learning Outcomes

BEE 411 Students will be able to accomplish the following upon completion of the course:

1. Identify global environmental change issues and become aware of the power of resource mapping to address challenging issues and find solutions to existing problems.

Students will do this by reading two articles per week, watching weekly presentations, exploring online mapping resources and demonstrating their knowledge by participating in class session discussions by posting comments/questions on the class blog.

2. Learn to use scientifically rigorous methods to explore complex issues related to global environmental change.

Students will do this by applying their newly acquired knowledge to their own class project .

3. Explore and analyze spatial data and related documentation, applying appropriate spatial data and analysis tools to find answers to environmental questions.

Students will do this by utilizing online data sharing sites (such as Data Basin) to find spatial data and evaluate the usefulness of these data for their global environmental change question.

4. Synthesize their research results to develop a set of proposed solutions to solve a global environmental change issue of their choice.

Students will do this by providing a set of answers to a particular global change question of their choice in a final project presentation and report.

5. Evaluate the value of peers work based on their newly acquired knowledge.

Student will do this by constructively critiquing their peers' final presentations.

BEE 511 Students will be able to accomplish the following upon completion of the course:

1. Identify global environmental change issues and become aware of the power of resource mapping to address challenging issues and find solutions to existing problems.

Student will do this by reading three articles per week, watching weekly presentations, exploring online mapping resources and demonstrating their knowledge by participating in class session discussions by writing a blog reviews about weekly articles.

2. Learn to use scientifically rigorous methods to explore complex issues related to global environmental change.

Students will do this by applying their newly acquired knowledge to their own class project.

3. Explore and analyze spatial data and related documentation, applying appropriate data and analysis tools to find answers to environmental questions,

Students will do this by utilizing online data sharing site (such as Data Basin) to find spatial data and evaluate the usefulness of these data for their global environmental change question.

4. Synthesize their research results to develop a set of proposed solutions to solve a global environmental change issue of their choice.

Students will do this by providing a set of answers to a particular global change question of their choice in a final project presentation and report.

5. Evaluate the value of peers work based on their newly acquired knowledge.

Student will do this by constructively critiquing the work of their peers 1) during the project design phase, reviewing undergraduate and graduate methods reports, and 2) providing comments on their peers' final projects.

Slash Course Distinction

Assignments	Schedule	Undergraduate - BEE 411	Graduate - BEE 511
Reading weekly articles provided by instructor	Weeks 1,2,3,4,5,6,8	2 out of 3	3 out of 3
Written review of articles	Week 1,3	Discussion comment	Blog about articles read
Written comments for on-line sites	Week 2	Spreadsheet will be provided by instructor	Spreadsheet will be provided by instructor
Written review of databasin.org datasets	Week 6	1 dataset review posted	3 datasets review posted
Written description of tools used in students project	Week 7	1 page description per tool posted	1 page description per tool and 1 review of 2 descriptions posted
Final project:			
* abstract	Week 4	posted	posted
* methods	Week 5	posted	posted

* tools description	Week 7	posted	posted
* Presentation	Week 9	posted	posted
* final report	Week 10	5 pages	10 pages
* presentation review	Week 10	2 presentation reviews	4 presentation reviews

Evaluation of Student Performance
BEE 411 Students will be evaluated:

30% - Class participation (blog posts and comments)
20% - Project proposal
20% - Reviews
30% - Final Presentation/Paper
100% total points

BEE 511 Students will be evaluated:

30% - Class participation (blog posts and comments)
20% - Project proposal
20% - Reviews
30% - Final Presentation/Paper
100% total points

Course Content

Week	Topic	Reading Assignments	Learning Activities	Due Date
1	**Introduction to course and students**	Bachelet, D. Comendant, T. and Strittholt, J. (2008) *Web platform for sharing spatial data and manipulating them online.* EOS, Transactions American Geophysical Union 92 (14): 118-119 van Oort, P. et al. (2010) *Social networks in spatial data infrastructures.* GeoJournal 75(1): 105-118 Hunter, G. Wachowics, M. and Bregt, A. (2003) *Understanding Spatial Data Usability.* Data Science Journal 2: 79-89	1) Watch weekly presentations and read weekly articles 2) 500 word written introduction 3) Create Data Basin profile	Check Canvas for due dates
2	**Introduction to Data Basin (www.databasin.org)**	Haak, L. et al. (2012) *Standards and Infrastructure for Innovative Data Exchange.* Information Science Sun, X. et al. (2012) *Development of*	1) Watch weekly presentations and read weekly articles	

		Web-based visualization platform for climate research using Google Earth. Computers & Geosciences 47:160-168 Borgman, C. (2012) *The conundrum of sharing research data.* Journal of the American Society for Information Science and Technology 63(3):1059-1078		
3	**Exploration of Data Basin equivalent web sites**	Scheffer, M. et al. (2012) *Anticipating Critical Transitions.* Science 38: 228-334 Lenton, T. et al. (2008) *Tipping elements in Earth's climate system.* Proceedings of the National Academy of Sciences of the United State of America 105(6): 1786-1793 Lemos, M. Kirchloff, C and Ramprasad, V. (2012) *Narrowing the climate information usability gap*. Nature 2(11): 789-794	1) Watch weekly presentations and read weekly articles 2) Complete - Data Sharing Site Matrix worksheet 3) Graduate blog post 4) Undergraduate comments for this week	Check Canvas for due dates
4	**Choose a global change question that requires access to shared spatial data**	Fernandez, M.A., Blum, S.B., Reichle, S., Guo, Q., Holzman, B.A., & H. Hamilton. 2009. Locality uncertainty and the differential performance of four common niche-based modeling techniques. Biodiversity Informatics 6:36-62 Loarie, S.R., Duffy, P.B., Hamiliton, H., Asner, G.P., Field, C.B. & D.D. Ackerly. (2009) *The velocity of climate change.* Nature 462: 1052-1055 Poulter, B, L Aragao, J Heinke, A Rammig, K Thonicke, F Langerwisch, U Heyder and W Cramer. 2010. Net biome production of the Amazon Basin in the 21st century. Global Change Biology 16(7):2062-2075. DOI: 10.1111/j.1365-2486.2009.02064.x.	1) Watch weekly presentations and read weekly articles 2) 500 word written abstract for final project 3) Graduate blog post 4) Undergraduate comments for this week	
5	**GIS Refresher and Data Exploration**	C. J. Vörösmarty et al 2010. *Global threats to human water security and river biodiversity*. Nature 467: 555-561. Zhao, M. and S. W. Running. 2010. Drought-induced reduction in global terrestrial net primary production from 2000 through 2009. Science	1) Watch weekly presentations and read weekly articles 2) Watch the "How to Create a Map" screen-cast, and create your own	

		329(5994):940 - 943 (doi: 10.1126/science.1192666). Allen, C. D. et al 2010. A global overview of drought and heat-induced tree mortality reveals emerging climate change risks for forests. Forest Ecology and Management 259(4): 660-684.	map - submit PDF 3) Graduate blog post 4) Undergraduate comments for this week	
6	**Data Standards/Quality control**	Li, D., Zhang, J. and Wu, H. 2012. *Spatial data quality and beyond.* International Journal of Geographical Information Science 26(12): 2277-2290 Delavar, M. and Devillers, R. 2010. *Spatial Data Quality: From Process to Decisions*. Transactions in GIS 14(4): 379-386 Devillers, R. et al. 2010. *Thirty Years of Research on Spatial Data Quality: Achievements, Failure, and Opportunities.* Transactions in GIS 14(2): 387-400	1) Watch weekly presentations and read weekly articles 2) Complete and submit Data Review Guidelines worksheet 3) Graduate blog post 4) Undergraduate comments for this week	Check Canvas for due dates
7	**Data Basin Tools**	Introduction to EEMS Modeling	1) Watch weekly presentations and read weekly articles 2) Graduate blog post 3) Undergraduate comments for this week	
8	**Data Analysis**	Cross, M. Zavaleta, E. Bachelet, D. Brooks, M. Enquist, C. Fleishman, E. Graumlich, L. Groves, C. and Hansen, L. et. al. (2012) The Adaptation for Conservation Targets (ACT) Framework: A Tool for Incorporating Climate Change into Natural Resource Management, Environmental Management, Journal number:267 Franklin, J., Davis, F. W., Ikegami, M.,	1) Watch weekly presentations and read weekly articles 2) Submit 1 page description of analysis methods 3) Graduate blog	

		Syphard, A. D., Flint, L. E., Flint, A. L. and Hannah, L. (2012), Modeling plant species distributions under future climates: how fine scale do climate projections need to be?. Global Change Biology. doi: 10.1111/gcb.12051 Morrison, S.A., Sillett, T.S., Ghalambor, C.K., Fitzpatrick, J.W., Graber, D.M., Bakker, V.J., Bowman, R., Collins, C.T., Collins, P.W., Delaney, K.S., Doak, D.F., Koenig, W.D., Laughrin, L., Lieberman, A.A., Marzluff, J.M., Reynolds, M.D., Scott, J.M., Stallcup, J.A., Vickers, W. and Boyce, W.M. 2011 Proactive Conservation Management of an Island-endemic Bird Species in the Face of Global Change. BioScience 61(12): 1013-1021	post 4) Undergraduate comments for this week	
9 & Dead-week	**Student Projects**		1) Record Final Presentations using Brain Shark 2) Watch peers presentations	
10	**Critique of Students Project**		1) Submit final report 2) Submit peer reviews/evaluations	Check Canvas for due dates

Course Policies

Discussion Participation

Students are expected to participate in all graded discussions. While there is great flexibility in online courses, this is not a self-paced course. You will need to participate in our discussions at least once each week due by the end of each week. Graduate students will be assigned one week during the term to write a 1500+ word blog post and all undergraduate students will participate by writing a 250+ word response each week due by the end of week.

Incompletes

Incomplete (I) grades will be granted only in emergency cases (usually only for a death in the family, major illness or injury, or birth of your child), and if the student has turned in 80% of the points possible (in other words, usually everything but the final paper). If you are having any difficulty that might prevent you completing the coursework, please don't wait until the end of the term; let me know right away.

Statement Regarding Students with Disabilities

Accommodations are collaborative efforts between students, faculty and Disability Access Services (DAS) with accommodations approved through DAS are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term to discuss accommodations. Students who believe they are eligible for accommodations but who have not yet obtained approval through DAS should contact DAS immediately at 541-737-4098.

Expectations for Student Conduct

Student conduct is governed by the university's policies, as explained in the Office of Student Conduct: Information and Regulations.

Academic Integrity

Students are expected to comply with all regulations pertaining to academic honesty. For further information, contact the office of Student Conduct and Mediation at 541-737-3656.

OAR 576-015-0020 (2) Academic or Scholarly Dishonesty:

a) Academic or Scholarly Dishonesty is defined as an act of deception in which a Student seeks to claim credit for the work or effort of another person, or uses unauthorized materials or fabricated information in any academic work or research, either through the Student's own efforts or the efforts of another.

b) It includes:

(i) CHEATING - use or attempted use of unauthorized materials, information or study aids, or an act of deceit by which a Student attempts to misrepresent mastery of academic effort or information. This includes but is not limited to unauthorized copying or collaboration on a test or assignment, using prohibited materials and texts, any misuse of an electronic device, or using any deceptive means to gain academic credit.

(ii) FABRICATION - falsification or invention of any information including but not limited to falsifying research, inventing or exaggerating data, or listing incorrect or fictitious references.

(iii) ASSISTING - helping another commit an act of academic dishonesty. This includes but is not limited to paying or bribing someone to acquire a test or assignment, changing someone's grades or academic records, taking a test/doing an assignment for someone else by any means, including misuse of an electronic device. It is a violation of Oregon state law to create and offer to sell part or all of an educational assignment to another person (ORS 165.114).

(iv) TAMPERING - altering or interfering with evaluation instruments or documents.

(v) PLAGIARISM - representing the words or ideas of another person or presenting someone else's words, ideas, artistry or data as one's own, or using one's own previously submitted work. Plagiarism includes but is not limited to copying another person's work (including unpublished material) without appropriate referencing, presenting someone else's opinions and theories as one's own, or working jointly on a project and then submitting it as one's own.

c) Academic Dishonesty cases are handled initially by the academic units, following the process outlined in the University's Academic Dishonesty Report Form, and will also be referred to SCCS for action under these rules.

Conduct in this Online Classroom

Students are expected to conduct themselves in the course (e.g., on discussion boards, email postings) in compliance with the Student Conduct Code.

Tutoring

NetTutor is a leading provider of online tutoring and learner support services fully staffed by experienced, trained and monitored tutors. Students connect to live tutors from any computer that has Internet access. NetTutor provides a virtual whiteboard that allows tutors and students to work on problems in a real time environment. They also have an online writing lab where tutors critique and return essays within 24 to 48 hours. Access NetTutor from within your Canvas class by clicking on the Tools button in your course menu.

OSU Student Evaluation of Teaching

Course evaluation results are extremely important and are used to help me improve this course and the learning experience of future students. Results from the 19 multiple choice questions are tabulated anonymously and go directly to instructors and department heads. Student comments on the open-ended questions are compiled and confidentially forwarded to each instructor, per OSU procedures. The online Student Evaluation of Teaching form will be available toward the end of each term, and you will be sent instructions via ONID by the Office of Academic Programs, Assessment, and Accreditation. You will log in to "Student Online Services" to respond to the online questionnaire. The results on the form are anonymous and are not tabulated until after grades are posted.

Textbook: *NOTE: For textbook accuracy, please check the textbook list at the OSU Bookstore website (http://osubeaverstore.com/). Sample syllabi may not have the most up-to-date information.*

NOTE to prospective students: *This syllabus is intended to provide students who are considering taking this course an idea of what they will be learning. A more detailed syllabus will be available on the course Canvas site for enrolled students and may be more current than this sample syllabus.*