Course Name: Global Environmental Change: Using Spatial Data to Inform Decisions
Course Number: BEE 411/511 Credits: 3
Instructor name: Dr. Dominique Bachelet
Instructor email: bacheled@oregonstate.edu

Course Description

This course will not teach GIS but how to use GIS to communicate research results effectively. Students will explore global environmental change questions using spatial data and online analysis tools. The course will guide students through:
1) a basic introduction to online mapping resources and geographic information challenges,
2) an exploration and critique of spatial data and information about using on-line tools,
3) a practical application developing an approach and gathering spatial datasets to address a global environmental change question of their choice,
and 4) a learning experience on how to develop a professional presentation and how to communicate effectively results of a scientific analysis.

This class is open to all OSU students with some basic GIS background (knowledge of a GIS package like ArcInfo or other GIS software required for graduate students).

A few examples of environmental problems that humans have addressed over the last few decades will be presented either in published articles or videos (TED). Students should want to address an important environmental problem that is of interest of them. Students will be expected to remain current with environmental news during the class so they can produce a project that is relevant to the times.

Communication: Please post all course-related questions in the Q&A Discussion Forum so that the whole class may benefit from our conversation. Please contact the instructor privately in canvas for all matters of personal nature. Replies to course-related questions should occur within 24-48 hours except on weekends when answers will likely be given the following Monday. Grades for assignments and other course activities should be given within five days of the due date.

Course Credits: This course combines approximately 90 hours of instruction, online activities, and assignments for 3 credits.

Technical Assistance:
- If you experience any errors or problems while in your online course, contact 24-7 Canvas Support through the Help link within Canvas.
- If you experience computer difficulties, need help downloading a browser or plug-in, or need assistance logging into a course, contact the IS Service Desk for assistance. You can call (541) 737-3474, email osuhelpdesk@oregonstate.edu or visit the OSU Computer Helpdesk online.

Learning Resources: There are no textbooks required for the class. Current news should provide many subjects of interest related to global environmental change.
Students will need access to audio, video and presentation tools. This may include:
● Kaltura (canvas video software) or other video recording software
● Microphone for recording audio
● Powerpoint, Google Slides, Prezi, Keynote or other presentation tools (e.g. Storymap)

Canvas: This course is delivered via Canvas, where you will interact with your classmates and your instructor. You will access the learning materials within the course site, 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

Upon completion of this course, students will be able to:

● Identify good quality spatial data and analysis tools.
● Demonstrate the ability to apply spatial data to a global environmental question.
● Prepare professional project description for funding purposes or public outreach.
● Review the work of peers and provide feedback.
● Summarize a spatial data analysis into effective visual presentations.
● Demonstrate the ability to present research in a clear and concise way.

Students will achieve these learning outcomes by completing the building blocks of spatial analysis project while practicing professional presentation skills both verbal and written. Students will also engage in peer-review processes to practice giving and receiving critical feedback to refine research analysis.

Bacc Core / Slash Course / WIC

Undergraduate (BEE 411)

Undergraduate students will describe, review, interpret, and analyze the information presented in the articles, videos, online resources and webinars made available in this course. Students will participate in online discussions to show their newly gained knowledge of the information and demonstrate their understanding of the facts. They will apply this knowledge to a selected Global Environmental Change topic, to demonstrate how their knowledge can be applied to an actual situation.

Undergraduate students will prepare a final presentation to show their synthesis of the knowledge and information gained during class and applied to a specific topic of their choice. The final presentation, discussing maps students have either created or found, with robust documentation, will be published on the class board for other students to access and review.

For a final evaluation, students will write a formal critique on one of their peers’ presentation showing their ability to evaluate the value of a presentation based on newly acquired knowledge.

The specific learning outcomes for Undergraduate students are:

Knowledge - Students will acquire new knowledge by reading peer-reviewed articles and demonstrate their knowledge by discussing the course materials during class sessions.

Comprehension - Students will show comprehension by reviewing course materials and posting their reviews to discussion board.

Application – Students will apply their newly acquired knowledge to an actual project they will choose.

Analysis & Synthesis – Students will search for data to answer their science questions, search or create tools to produce satisfactory answer to a particular question of interest and relevance, synthesizing their approach into a final project report.

Evaluation - Students will write reviews base on newly acquired knowledge through reading and discussions and constructively assess the work of a peer.

Graduate (BEE 511)

Graduate students will describe, review, interpret, and analyze the information presented in the articles, videos, online resources and webinars made available in this course. Students will participate in online discussions to show their newly gained knowledge of the information and demonstrate their understanding of the facts. They will apply this knowledge to a selected Global Environmental Change topic, to demonstrate how their knowledge can be applied to an actual situation.
Graduate students will be required to also evaluate and provide feedback to peers about their final project reports. This review process will give graduate students the opportunities to break down the objectives of other students’ projects and determine if the right tools are being used.

Graduate students will prepare a final presentation using a GIS platform such as ArcInfo or Data Basin or any other GIS software of their choice to show their synthesis of knowledge and information gained during class and applied to a specific topic of their choice. The final presentation, including data and supporting documents, will be published on the class board for other students to access and review.

For a final evaluation, students will write a formal critique on two of their peers’ reports showing their ability to evaluate the value of a written document based on newly acquired knowledge.

The specific learning outcomes for Graduate students are:

- **Knowledge** - Students will demonstrate their knowledge by discussing the course materials during class sessions (including reading peer-reviewed articles).
- **Comprehension** - Students will show comprehension of the materials by reviewing the course materials and posting their reviews to course discussion board.
- **Application** - Students will apply their newly acquired knowledge to an actual project of their choice.
- **Analysis & Synthesis** - Students will search for data to answer their science questions, search or create tools to produce satisfactory answer to a particular question of interest and relevance, synthesizing their approach into a final project report.
- **Evaluation** - Students will write reviews base on newly acquired knowledge through reading and discussions and constructively assess the work of a peer.

**Course Content and Schedule - Evaluation of Student Performance**

Week Topic Learning Activities:

1. **Introduction to course:** Students create a ~5 minute video to introduce themselves.
2. **Basic GIS:** Students explore and discuss geospatial websites.
3. **Course Project Description:** Students submit the description of their project for this class.
4. **Project Methods:** Students submit a description of the methods they are using for their project.
5. **Spatial Data Limitations and Challenges:** All students review and explore examples of spatial data challenges and limitations.
6. **Communicating Science Results:** Students submit a plain language summary of their project.
7. **Telling the story:** Students explore effective maps and discuss storytelling examples (storymaps).
8. **Effective infographics:** Students create a handout with infographics to summarize their project.
9. **Final Presentation:** Students submit a 5 minute video presentation about their project.
10. **Peer Review:** Students peer review each other’s final projects.

**Course Policies**

**Discussion Participation**

Students are expected to participate in discussions and peer-review feedback. While there is great flexibility in online courses, this is not a self-paced course. At the end of the class (and more often for graduate), students will be assigned other students’ projects to review. The review must be completed with 48 hours of the material submission date. For example, if an assignment to be reviewed is due on Wed at 5pm, the reviewer will have until the following Friday at 5pm to complete the review.
**Late Work Policy**

Students will be expected to turn in all assignments by the due date, if a student is not able to submit by the due date please contact the instructor immediately for an extension. Extensions will be granted on an individual basis with an exception for the final presentation due to the dependency for other students to review the material.

**Incomplete s**

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 the instructor know right away.

**Guidelines for a Productive and Effective Online Classroom**

Students are expected to conduct themselves in the course (e.g., on discussion boards, email) in compliance with the university’s regulations regarding civility. Civility is an essential ingredient for academic discourse. All communications for this course should be conducted constructively, civilly, and respectfully. Differences in beliefs, opinions, and approaches are to be expected. In all you say and do for this course, be professional. Please bring any communications you believe to be in violation of this class policy to the attention of your instructor.

Active interaction with peers and your instructor is essential to success in this online course, paying particular attention to the following:

- Unless indicated otherwise, please complete the readings and view other instructional materials for each week before participating in the discussion board.
- Read your posts carefully before submitting them.
- Be respectful of others and their opinions, valuing diversity in backgrounds, abilities, and experiences.
- Challenging the ideas held by others is an integral aspect of critical thinking and the academic process. Please word your responses carefully and recognize that others are expected to challenge your ideas. A positive atmosphere of healthy debate is encouraged.

**Statement Regarding Students with Disabilities**

Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval, please contact DAS immediately at 541-737-4098 or at http://ds.oregonstate.edu. DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.

**Accessibility of Course Materials**

All materials used in this course are accessible. If you require accommodations, please contact Disability Access Services (DAS).

Additionally, Canvas, the learning management system through which this course is offered, provides a vendor statement certifying how the platform is accessible to students with disabilities.

**Expectations for Student Conduct**

Student conduct is governed by the university’s policies, as explained in the Student Conduct Code. Students are expected to conduct themselves in the course (e.g., on discussion boards, email postings) in compliance with the university’s regulations regarding civility.

**Academic Integrity**

Students are expected to comply with all regulations pertaining to academic honesty. For further information, visit Student Conduct and Community Standards, or 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.

**Tutoring and Writing Assistance**

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.

The Oregon State Online Writing Lab (OWL) is also available for students enrolled in Ecampus courses.

TurnItIn

Your instructor may ask you to submit one or more of your writings to Turnitin, a plagiarism prevention service. Your assignment content will be checked for potential plagiarism against Internet sources, academic journal articles, and the papers of other OSU students, for common or borrowed content. Turnitin generates a report that highlights any potentially unoriginal text in your paper. The report may be submitted directly to your instructor or your instructor may elect to have you submit initial drafts through Turnitin, and you will receive the report allowing you the opportunity to make adjustments and ensure that all source material has been properly cited. Papers you submit through Turnitin for this or any class will be added to the OSU Turnitin database and may be checked against other OSU paper submissions. You will retain all rights to your written work. For further information, visit Academic Integrity for Students: Turnitin – What is it?

**Student Evaluation of Courses**

The online Student Evaluation of Teaching system opens to students the Monday of dead week and closes the Monday following the end of finals. Students receive notification, instructions and the link through their ONID. They may also log into the system via Online Services. Course evaluation results are extremely important and used to help improve courses and the online learning experience for future students. Responses are anonymous (unless a student chooses to “sign” their comments, agreeing to relinquish anonymity) and unavailable to instructors until after grades have been posted. The results of scaled questions and signed comments go to both the instructor and their unit head/supervisor. Anonymous (unsigned) comments go to the instructor only.