MNR 538

Adapting Forests to Climate Change: Science, Management, and Policy

Course Syllabus | Winter 2016 | 3 Credits

Instructor: Glenn Howe; 334 Richardson Hall; 737-9001; Glenn.Howe@oregonstate.edu

Credits: 3  Prerequisites: Bachelor's degree.  Recommended: Undergrad biology or ecology course.

Course description
Climate change is expected to have profound effects on forests. Society can respond by managing in forests in ways that can help mitigate climate change or help forests adapt. Nonetheless, changes in climate and forest responses are uncertain, making management and policy decisions difficult and controversial. We will investigate the effects of climate change on forests, focusing on potential forest management and policy responses.

Structure.  This course combines approximately 90 hours of video instruction, readings, online activities, and other assignments for 3 credits.

OBJECTIVES, LEARNING OUTCOMES AND ACTIVITIES

Course objectives: The objectives of the course are to gain a broad understanding of the:

- Projected changes in climate
- Potential effects of climate change on forests
- Approaches forest managers and policymakers can use to help forests adapt to climate change
- Sources of information on climate change and forest responses
- Scientific approaches used to understand climate change and potential forest responses
- Public’s perceptions of climate change and effective ways to communicate climate change information

Student learning outcomes: By the end of the course, students will be able to describe, synthesize, and integrate information on the following topics:

- Earth’s the climate system
- Causes and consequences of climate change
- Potential effects of climate change on forests
- Scientific approaches used to understand the causes and consequences of climate change
- Distinctions between climate change adaptation and mitigation
- Key policy issues related to climate change adaptation and mitigation
- Physiological, genetic, and ecological underpinnings of forest adaptation to climate change
- Approaches forest managers can use to help forests adapt to climate change
- Public’s perceptions of climate change and forest management

Course learning activities: Students will:

- Watch online videos and take associated online quizzes
- Read, discuss, and summarize assigned readings
- Prepare weekly writings that synthesize and integrate the week’s topics
- Take mid-term and final exams
- Prepare a written forest adaptation plan that synthesizes and integrates information across all biophysical and social science topics covered in the class

Online discussions and general communications
You must participate in graded discussions on at least two different days each week, with your first post due no later than Wednesday, and your second post due no later than Friday.

This course is offered through Oregon State University Extended Campus. For more information, contact:
Web: ecampus.oregonstate.edu  Email: ecampus@oregonstate.edu  Tel: 800-667-1465
Interactions with peers and your instructor are essential to your success:

- 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 integral to critical thinking and learning. Please word your responses carefully, and recognize that others are expected to challenge your ideas. A positive atmosphere of healthy debate is encouraged.
- Please post all course-related questions in the General Discussion Forum so the whole class can benefit. Email your instructor for other personal matters. I will reply to course-related questions and email within 24-48 hours. I will strive to return your assignments and grades within five days of the due date.

Proctored exams
This course requires that you take exams under the supervision of an approved proctor. Proctoring guidelines and registration for proctored exams are available online through the Ecampus testing and proctoring website. It is important to submit your proctoring request as early as possible to avoid delays.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage of grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes</td>
<td>10</td>
</tr>
<tr>
<td>Discussion of assigned readings</td>
<td>15</td>
</tr>
<tr>
<td>Weekly writings</td>
<td>20</td>
</tr>
<tr>
<td>Mid-term exam</td>
<td>15</td>
</tr>
<tr>
<td>Final exam</td>
<td>15</td>
</tr>
<tr>
<td>Forest adaptation plan</td>
<td>25</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Grading: A/F (A through F), based on scores obtained by completing the quizzes, discussions, writings, exams, and forest adaptation plan. A = 93-100; A- = 90-92; B+ = 87-89; B = 83-86; B- = 80-82; C+ = 77-79; C = 73-76; C- = 70-72; D+ = 67-69; D = 63-66; D- = 60-62; F = < 60.

COURSE POLICIES

Plagiarism
Plagiarism is not tolerated. Any submitted assignments that contain plagiarism will be given a grade of zero. Make you know what plagiarism is and how to avoid it (see student contact).

Late assignment policy
Assignment deadlines are posted on the Canvas web site. Makeup exams and grades for late assignments will be given only for legitimate absences excused in advance by the instructor. Excused absences will not be given for travel, routine illness (colds, flu, stomach aches), or other common ailments. Excused absences will not be given after the absence has occurred, except under very unusual circumstances. Unless there is an excused absence, late assignments will receive no grade (0 points).

Incomplete
Incomplete (I) grades will be granted only for emergencies that occur late in the course (e.g., a death in the family, major illness or injury, or birth of your child). 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.
LEARNING RESOURCES

Learning materials
All learning materials are provided as part of the course.

Statement regarding students with disabilities
Accommodations are collaborative efforts between students, faculty, and Disability Access Services (DAS). Students 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. 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.

Tutoring
NetTutor is a 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 NetTutor button in your course menu.

Canvas technical assistance
This course will be delivered via Canvas, where you will interact with your classmates and instructor. Within the 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.

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 osuhelpe@oregonstate.edu or visit the OSU Computer Helpdesk online.

STUDENT EVALUATION OF TEACHING (SET)
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 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 into “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.

STUDENT CONDUCT
Students are expected to conduct themselves in compliance with the university’s regulations regarding civility and academic integrity, which is governed by the university’s policies, explained in the Student Conduct Code. Plagiarism, in particular, is not tolerated. Any submitted assignments that contain plagiarism will be given a grade of zero. Make you know what plagiarism is and how to avoid it (see student contact).

Conduct in the online classroom
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 expected. In all you say and do for this course, be professional. Please bring any communications you believe to be in violation of this policy to the attention of your instructor. Behaviors that are disruptive to teaching and learning will not be tolerated.

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behaviors. Behaviors that create a hostile, offensive, or intimidating environment based on gender, race, ethnicity, religion, age, disability, marital status, or sexual orientation will be referred to the Affirmative Action Office.

**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.

**Plagiarism**

The following statement edited from the Online Writing Lab (OWL) at Purdue University applies to this class (Best Practices for Teachers; Contributors Karl Stolley, Allen Brizee, and Joshua M. Paiz; Last Edited: 2013-01-04 12:18:58; https://owl.english.purdue.edu/owl/resource/589/05/).

> “When writers use material from other sources, they must acknowledge this source. Not doing so is called plagiarism, which means using without credit the ideas or expressions of another. You are therefore cautioned (1) against using, word for word, without acknowledgment, phrases, sentences, paragraphs, etc., from the printed or manuscript material of others; (2) against using with only slight changes the materials of another; and (3) against using the general plan, the main headings, or a rewritten form of someone else's material. These cautions apply to the work of other students as well as to the published work of professional writers.

Of course, these cautions also apply to information you find on ... on-line sources. Since we will be discussing how to acknowledge and cite sources, you should be able to avoid accidentally plagiarizing anyone else's work. If you are in doubt, please ask me, since the consequences for plagiarism are severe.”
Academic sanctions. Students whose behavior is found to constitute Academic or Scholarly Dishonesty as defined in 576-015-0020(2) are subject to additional academic sanctions, which may include but are not limited to failing the course, removal from an academic department, or removal from a college. Academic sanctions are imposed by the instructor, department chair, or dean and are noted on the Academic Dishonesty Report Form in accordance with Academic Regulation 15.
http://studentlife.oregonstate.edu/sites/studentlife.oregonstate.edu/files/student_conduct_code_1.pdf

COURSE SCHEDULE: Adapting Forests to Climate Change

<table>
<thead>
<tr>
<th>Week</th>
<th>Topics</th>
<th>Readings</th>
<th>Learning activities</th>
<th>Due dates</th>
</tr>
</thead>
</table>
| 1    | 1. Course introduction  
Syllabus and course structure  
Forests and climate - overview  
Evidence for climate change - IPCC | TBD | Online discussion  
Writing #1 | TBD |
| 2    | 2. Climate science  
Earth’s energy budget  
Greenhouse effect  
Greenhouse gases | TBD | Online discussion  
Writing #2  
Quiz #1 | TBD |
| 3    | 2. Climate science  
Carbon cycle  
Climate models and climate projections | TBD | Online discussion  
Writing #3  
Quiz #2 | TBD |
| 4    | 3. Forest biology  
Climate change threats and opportunities  
Forest tree physiology and adaptations to climate | TBD | Online discussion  
Mid-term exam #1 | TBD |
| 5    | 3. Forest biology  
Forest tree physiology and adaptations to climate  
Vegetation types, species distributions, and genetics | TBD | Online discussion  
Writing #4  
Quiz #3 | TBD |
| 6    | 3. Forest biology  
Forest stands and landscapes  
Forest disturbances | TBD | Online discussion  
Writing #5  
Quiz #4 | TBD |
| 7    | 3. Forest biology  
Dynamic vegetation models  
Species distribution models  
Forest growth models | TBD | Online discussion  
Mid-term exam #2 | TBD |
| 8    | 4. Human dimensions  
Public perceptions of climate change  
Uncertainty and risk  
Communicating climate change  
5. Adaptation and mitigation  
Climate change adaptation concepts  
Adaptation plans | TBD | Online discussion  
Writing #6  
Quiz #5 | TBD |
| 9    | 5. Adaptation and mitigation  
Genetic options  
Reforestation and reforestation options  
Stand management options | TBD | Online discussion  
Writing #7  
Quiz #6 | TBD |
<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Online discussion</th>
<th>Other</th>
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<tbody>
<tr>
<td>10</td>
<td>5. Adaptation and mitigation</td>
<td>TBD</td>
<td>Carbon sequestration</td>
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<td>Policy and planning</td>
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<td></td>
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<td>Course wrap-up</td>
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<tr>
<td>Final</td>
<td>Final exam</td>
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<td>Final exam</td>
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