Instructor: Dr. Robert M. Scheller, Assistant Professor, Environmental Sciences & Mgmt.
email: rmschell@pdx.edu (note: never use the D2L email function; it doesn’t work)

Office Hours: Wednesday from 1-3pm or by appointment.

Time and Location: Tuesdays and Thursday, 2-3:50pm; Cramer Hall 287

What is Forest Ecology?
Forest ecology is the study of forested ecosystems, their biotic and abiotic drivers, and the theories and tools that we use to understand forest ecosystems and project how they will change. Forest ecology considers more than the constituent trees. Forest ecology considers not only forest succession but also the carbon and nitrogen dynamics of forests, forest soils, climate and weather, water and energy balances, and disturbance dynamics. All of these drivers operate in tandem over fairly long durations (the life span of the typical tree) to create the forests – and their associated ecosystem services – that are a defining feature of our biosphere.

Course Description:
Forest Ecology will explore the theories and principles of forest ecology as a framework for understanding forest ecosystem change. This is an advanced course for undergraduate majors from environmental science, environmental studies, or biology or graduate students from the School of the Environment or Biology.

This course will: 1) synthesize the dominant theories of forest ecology; 2) expose students to current methods and approaches in forest ecology, and 3) familiarize students with current research trends in the field. Some of the topics covered in the course will include consideration of forests as ecosystems, physical determinants of forest structure and function, disturbance and succession, population and community ecology in forests, spatial and temporal diversity of forest types, nutrient and energy cycling, and management implications.

Students will explore the theories, methods, and applications of forest ecology with 1) class lectures by the instructor and recognized experts in particular subject areas, 2) reading and discussion of literature representative of research in the field, and 3) completion of hands-on exercises designed to provide experience with quantitative tools.
There will be optional field trips to regional forests, including the Gifford Pinchot National Forest. Details to be arranged.

**Learning Objectives:**
- Introduce students to the major biotic and abiotic factors that influence forest ecosystem structure, function, and diversity.
- Introduce students to the dominant theories that have guided the study of forest ecosystems.
- Improve student ability to read and analyze scientific papers.
- Develop student’s quantitative skills through the application of common forest ecology methods and tools.
- Develop students’ skills in quantitative methods, analysis, interpretation, and presentation of information.
- Provide a foundation for the conservation and management of forest ecosystems.
- Increase awareness of the role of forests from a global ecological perspective.

**Teaching and Learning Activities:**

This course will consist of regularly-scheduled class meetings. Occasionally, part of this class time will be devoted to labs; there are three labs total. Some class periods will be devoted to small or large group discussions on relevant literature.

Other learning activities will include assignments based on the labs, take home exams, and field trips. There are two potential field trips; each is optional and each can be substituted for either the mid-term or final (only one substitution allowed). However, receiving full credit for a field trip requires that a student is engaged and responsible for the duration of the field trip. **I encourage all students to attend both field trips if possible!**


**Prerequisites:** Graduate student or junior or senior standing, and an ecology lab course beyond the introductory level. Recommended courses: GEOG 313 (Biogeography) or BIO 357 (Ecology) or ESM 320/321 (Analysis of Environmental Systems).
**Evaluation:**

Grades vary between undergraduate and graduate students. **You will be graded as a graduate student if you are pursuing a Master’s degree or higher.**

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<thead>
<tr>
<th>Description</th>
<th>Undergraduate</th>
<th>Graduate</th>
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<tbody>
<tr>
<td>Mid-term (or Field Trip*)</td>
<td>25%</td>
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<tr>
<td>Final (or Field Trip*)</td>
<td>25%</td>
<td>20%</td>
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<tr>
<td>Labs</td>
<td>30% (10,10,10)</td>
<td>30% (10,10,10)</td>
</tr>
<tr>
<td>Discussion / Participation</td>
<td>20%</td>
<td>20%</td>
</tr>
<tr>
<td>Review Essay</td>
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<td>10%</td>
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*Only one field trip substitution allowed, for either the mid-term or final (your choice).

Grades will be assigned on a point basis. There **will not be** any opportunities for making up exams or extra credit.

**Graduate students** will be responsible for writing an additional review essay on a forest ecology topic of their choosing (with instructor approval).

**Discussion and Labs:**

Some labs will begin during regular classes. The labs may require collaboration with other students. In addition, discussion periods are a critical component and you will be graded on your participation. **Graduate students are expected to lead small group discussions.** Therefore, participation in classes is critical. Please inform me (via email) if you will be missing any classes.

**Technology**

You are allowed to use a laptop to take notes. Cell phones are not allowed in any capacity. All assignments and tests will be turned in via D2L.

**Sickness policy:**

You are encouraged NOT to attend class if you are sick with the flu or any other contagious disease. Do not bring your sick children to PSU either. You should stay away from school and other crowds until your fever has been gone for 24 hours (without medication).

If the lecturer is sick, you are still responsible for reading the lecture notes from that day and any reading. All assignments are due on time whether or not the lab or lecture instructor is sick.
**Final Grades:** All course components will be graded on a percentage basis, adding to 100%. Final grades will be assigned according to the scale below. Upward adjustments to this scale are possible but unlikely.

<table>
<thead>
<tr>
<th>Grade</th>
<th>% of possible points</th>
<th>Grade</th>
<th>% of possible points</th>
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<tbody>
<tr>
<td>A</td>
<td>94.5</td>
<td>C</td>
<td>76.5</td>
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<tr>
<td>A-</td>
<td>91.5</td>
<td>C-</td>
<td>73.5</td>
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<tr>
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<td>88.5</td>
<td>D+</td>
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<tr>
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<td>79.5</td>
<td>F</td>
<td>Below 64.5</td>
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