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 site for enrolled students and may be more current than this sample syllabus. Summer term courses may be accelerated – please check the Ecampus Schedule of Classes for more information.

COURSE NUMBER   FW 456/556
COURSE NAME   LIMNOLOGY

COURSE CREDIT
(5) This course combines approximately 150 hours of instruction, online activities, and assignments for 5 credits.

PREREQUISITES, CO-REQUISITES AND ENFORCED PREREQUISITES
Senior standing.

COURSE DESCRIPTION:
Physical, chemical, and biological concepts in limnology and techniques related to aquatic resources and their management.

CONTACT INFORMATION:
Please post all course-related questions in the General Discussion Forum so that the whole class may benefit from our conversation. Please email your instructor for matters of a personal nature. I will reply to course-related questions and email within 24-48 hours. I will strive to return your assignments and grades for course activities to you within five days of the due date.

For more information, contact: BRUCE DUGGER, NASH 166, 541-737-2465

Sample syllabi may not have the most up-to-date information. For accuracy, please check the ECampus Schedule of Classes to see the most current instructor information. You can search for contact information by name from the OSU Home Page.

LEARNING RESOURCES:
The required text for the course will be:

Power Point files will be posted in advance in CANVAS under the Weekly Assignments in the Modules section, although some modification to those files may occur over the course of the term. We strongly recommend that you keep up with the weekly lectures, but don’t skip ahead – the topics build on each other and are cumulative.

The majority of the course materials in this course should be accessible to all students. If a student cannot access or understand any course materials, they should contact the instructor for accommodation or assistance. The Instructor will provide access in a format that meets the needs of the student.

NOTE: For textbook accuracy, please always check the textbook list at the OSU Bookstore website. Sample syllabi may not have the most up-to-date information.

Students can also click the ‘OSU Beaver Store’ link associated with the course information in the Ecampus schedule of classes for course textbook information and ordering.

COURSE SPECIFIC MEASURABLE STUDENT LEARNING OUTCOMES:
See Weekly Assignments in the Modules section for weekly summaries of course content and specific weekly learner outcomes. Weekly learner outcomes are linked to the overall learner outcomes for the course in a matrix provided under Start Here and the item named Learner Outcome Matrix. Each outcome objective is linked to specific assignments, lectures, and assessments.

By the end of this course, students will be able to:
- Describe the physical properties of lakes and those environmental processes that influence the chemical, and biological dynamics of lakes
- Summarize the fundamental chemical characteristics of water quality, including pH and buffering capacity, dissolved oxygen, and biologically important nutrients.
- Describe the fundamental biological habitats and processes and use them appropriately to interpret the ecological responses of aquatic populations, communities and ecosystems in real world examples.
- Summarize the fundamental relationships in population dynamics of aquatic organisms
- Describe the major community interactions and explain how they influence biodiversity
- Describe the fundamental properties of lentic and lotic ecosystems and explain how they change as a result of the ontogeny of lakes and rivers
• Be able to determine the types of information required to assess the environmental status and trends of lakes and rivers
• Analyze limnological data to assess the status and trends of aquatic ecosystems based on the fundamental principles
• Explain the relationships that shape limnological characteristics of lakes and streams
• Apply concepts of the structure and function of aquatic ecosystems to new settings and problem solving

In addition to the above outcomes, graduate students will be able to:
• Coordinate assessment teams directed to assess the limnological status and trends of lakes and rivers
• Synthesize multiple sources of ecosystem-based information and develop ecologically sound management actions and plans
• Present work that is significantly more rigorous in both depth of study and methodology than students enrolled for undergraduate credit. Graduate students will be held to academic standards higher than those enrolled for undergraduate credit

COURSE CONTENT AND POLICIES:
Sequence of topics  Chapter  Powerpoint

<table>
<thead>
<tr>
<th>Week 1</th>
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<tbody>
<tr>
<td>Properties of Water</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Light</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Heat</td>
<td>2</td>
<td>3</td>
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<tr>
<td>Week 2</td>
<td></td>
<td></td>
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<tr>
<td>Lake Stratification</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Origin of Lakes</td>
<td>11</td>
<td>4</td>
</tr>
<tr>
<td>Lake Morphometry</td>
<td>11</td>
<td>5</td>
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<tr>
<td>Week 3</td>
<td></td>
<td></td>
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<tr>
<td>Stream Geomorphology</td>
<td>11</td>
<td>6</td>
</tr>
<tr>
<td>Movement of Water</td>
<td>2</td>
<td>7</td>
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<tr>
<td>Chemical Composition of Fresh Water</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>Week 4</td>
<td>Dissolved Oxygen</td>
<td>2, 10</td>
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<tr>
<td>Nitrogen</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Phosphorus and Micronutrients</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Week 5</td>
<td>Redox</td>
<td>2</td>
</tr>
<tr>
<td>Inorganic Carbon</td>
<td>10</td>
<td>13</td>
</tr>
<tr>
<td>Retention and Nutrient Spiraling</td>
<td>10</td>
<td>14</td>
</tr>
<tr>
<td>Week 6</td>
<td>Organic Carbon</td>
<td>10</td>
</tr>
<tr>
<td>Lentic and Lotic Ecosystems</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>Primary Production</td>
<td>9</td>
<td>17</td>
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<tr>
<td>Week 7</td>
<td>Phytoplankton</td>
<td>3</td>
</tr>
<tr>
<td>Benthic Algae/Macrophytes</td>
<td>3</td>
<td>18</td>
</tr>
<tr>
<td>Sediments and Microbial Processes</td>
<td>10</td>
<td>19</td>
</tr>
</tbody>
</table>

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### Course Policies

**Timelines for grading** — All exams will be graded within 5 days of the deadline for completing the exam. All lab assignments will be graded within one week of the deadline for completing the assignment. All Discussion Board assignments will be completed within 5 days of the deadline for completing the assignment.

**Exam Policies** — Preparing makeup exams requires a significant effort on the part of the instructor. Consequently, makeup exams will not routinely be given. Makeup exams will be given only for missed exams excused in advance by the instructor. For missed exams that can be anticipated ahead of exam time, advance permission from the instructor to miss the exam will be necessary. Regrades of exams will be performed when there is an error and the student requests it. All requests for regrading must be made within one week of the day the exam is returned and must be accompanied with a written explanation of why the answer deserves additional credit and course-related sources for that explanation. After that period of time, grades will be fixed and will not be changed.

**Incompletes** — I assign an "I" or incomplete only when there is a strong and compelling case for doing so (e.g., health reasons, military commitment). I will consider assigning an incomplete only if the individual has completed over 50% of the course tasks (e.g., papers 1 and 2, and the midterm).

**Late Assignments** — I will work with students individually if they notify me at least 24 before a deadline that they have a conflict or illness that will cause them to miss the assignment deadline. If a deadline is missed and the instructor is not contacted, the grade on the assignment will be automatically decreased 10% per day after the deadline. All exams must be completed within the scheduled period unless the student has made prior arrangements with the instructor.

### EVALUATION OF STUDENT PERFORMANCE:

Grades will be based on two midterm exams, online laboratory assignments, a laboratory exam, and a final exam.

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Percent of Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Limnology Midterm</td>
<td>15%</td>
</tr>
<tr>
<td>Chemical Limnology Midterm</td>
<td>15%</td>
</tr>
<tr>
<td>Final Examination</td>
<td>30%</td>
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</table>

<table>
<thead>
<tr>
<th>Laboratory</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory Examination</td>
<td>5%</td>
</tr>
<tr>
<td>Laboratory Reports</td>
<td>15%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Discussions</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussion 1</td>
<td>5%</td>
</tr>
<tr>
<td>Discussion 2</td>
<td>5%</td>
</tr>
<tr>
<td>Discussion 3</td>
<td>5%</td>
</tr>
<tr>
<td>Discussion 4</td>
<td>5%</td>
</tr>
</tbody>
</table>
All exams are comprehensive and draw from all information presented in lecture, laboratory, and assigned readings. Complete sentences, correct grammatical construction, and correct spelling are required on exams and reports.

**Grading Scale**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Score Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>93.4-100%</td>
</tr>
<tr>
<td>A-</td>
<td>90.0-93.3%</td>
</tr>
<tr>
<td>B+</td>
<td>86.7-89.9%</td>
</tr>
<tr>
<td>B</td>
<td>83.4-86.6%</td>
</tr>
<tr>
<td>B-</td>
<td>80.0-83.3%</td>
</tr>
<tr>
<td>C+</td>
<td>76.7-79.9%</td>
</tr>
<tr>
<td>C</td>
<td>73.4-76.6%</td>
</tr>
<tr>
<td>C-</td>
<td>70.0-73.3%</td>
</tr>
<tr>
<td>D+</td>
<td>66.7-69.9%</td>
</tr>
<tr>
<td>D</td>
<td>63.4-66.7%</td>
</tr>
<tr>
<td>D-</td>
<td>60.0-63.3%</td>
</tr>
<tr>
<td>F</td>
<td>&lt;60%</td>
</tr>
</tbody>
</table>

**COURSE SITE LOGIN INFORMATION**

Information on how to login to your course site can be found [HERE](#).

**STATEMENT REGARDING STUDENTS WITH DISABILITIES**

Oregon State University is committed to student success; however, we do not require students to use accommodations nor will we provide them unless they are requested by the student. The student, as a legal adult, is responsible to request appropriate accommodations. The student must take the lead in applying to Disability Access Services (DAS) and submit requests for accommodations each term through DAS Online. OSU students apply to DAS and request accommodations at our [Getting Started with DAS](#) page.

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.

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.

**ACADEMIC INTEGRITY AND STUDENT CONDUCT (OSU POLICY)**

Students are expected to be honest and ethical in their academic work. Intentional acts of academic dishonesty such as cheating or plagiarism may be penalized by imposing an “F” grade in the course.
Student conduct is governed by the universities policies, as explained in the Office of the Dean of Student Life: Student Conduct and Community Standards. In an academic community, students and faculty, and staff each have responsibility for maintaining an appropriate learning environment, whether online or in the classroom. Students, faculty, and staff have the responsibility to treat each other with understanding, dignity, and respect.

Students are expected to conduct themselves in the course (e.g. on discussion boards, email postings, etc.) in compliance with the university's regulations regarding civility. Students will be expected to treat all others with the same respect as they would want afforded to themselves. Disrespectful behavior (such as harassing behavior, personal insults, inappropriate language) or disruptive behaviors are unacceptable and can result in sanctions as defined by Student Conduct and Community Standards.

For more info on these topics please see:

- Statement of Expectations for Student Conduct
- Student Conduct and Community Standards - Offenses
- Policy On Disruptive Behavior

PLAGIARISM
You are expected to submit your own work in all your assignments, postings to the discussion board, and other communications, and to clearly give credit to the work of others when you use it. Academic dishonesty will result in a grade of “F.”

- Statement of Expectations for Student Conduct
- Avoiding Academic Dishonesty

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.

- COURSE DEMO
- GETTING STARTED

TUTORING
For information about possible tutoring for this course, please visit our Ecampus NetTutor page. Other resources include:

- Writing Center
- Online Writing Lab

STUDENT EVALUATION OF TEACHING
The online Student Evaluation of Teaching form will be available in week 9 and close at the end of finals week. Students will be sent instructions via ONID by the Office of Academic Programs, Assessment, and Accreditation. Students 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. Course evaluation results are very important and are used to help improve courses and the learning experience of future students. Results from questions are tabulated anonymously and go directly to instructors and unit heads/supervisors. Unless a comment is “signed,” which will associate a name with a comment, student comments on the open-ended questions are anonymous and forwarded to each instructor. “Signed” comments are forwarded to the unit head/supervisor.

REFUND POLICY INFORMATION
Please see the Ecampus website for policy information on refunds and late fees.