This course is worth **2 credits.**

**Prerequisites:** Junior Standing
BioSci 315, 310, or 383 or Consent of Instructor

**Professor:** Dr. John A. Berges
Office: Lapham Hall (South wing) S587 (I’m often in my Laboratory, S568)
Phone: 414-229-3258, e-mail: berges@uwm.edu
Office hours: Mon 12:00 – 13.00 h

_E-mail is the surest way to contact me. My phone has an answering machine, and there is a note-board outside my office. You do not need an appointment to come to my regular office hours (though it might save you a short wait). If you have a conflict with those times, please email me to schedule an alternative time._

**Class Meets:** 14.00 – 15.50 h Wednesdays  Lapham Hall 257

**Learning Objectives:** The purpose of this seminar is to acquaint the class with current topics and research advances in limnology and oceanography (1,2). This will be accomplished through directed readings in the recent primary scientific literature (3), and a series of student-led seminar discussions (4). In some cases, we may invite participation of local aquatic scientists with expertise in the chosen topics.

This semester the seminar will focus on questions and issues that have come up in both marine and freshwater systems in recent years. Emphasis will be placed on exploring how approaches to the questions and issues have differed between freshwater and marine ecosystems and on trying to decide the extent to which there is common scientific ground (5,6).

[**Key Syllabus Objectives:** (1) Apply the scientific method to biological questions, (2) Investigate scientific questions, (3) Retrieve scientific information, (4) Synthesize, integrate and communicate scientific information, (5) Demonstrate and articulate evolutionary concepts, (6) Describe and apply biological information and concepts]

While the following list is **NOT** exclusive (i.e. I would be **delighted** if students suggested alternative topics related to their own interest or research, or chose alternative papers within the topics listed below…but do check with me before going ahead), but specific topics that are relevant and high-profile include:

**Roles of nitrogen and phosphorus in production limitation and eutrophication**


Microalgal and macroalgal blooms: new developments


Silica dynamics


Phosphonates in aquatic environments


Viruses and their roles in marine and freshwater ecosystems

Significance of horizontal gene transfer in aquatic environments

Microbiomes

Natural mortality in phytoplankton


**Carbon dioxide and acidification of aquatic ecosystems**


**Allelopathy and natural products in aquatic systems**


Iron and trace metal limitation of primary producers


New threats of invasive species to aquatic ecosystems


Novel aquatic pollutants: plastics and pharmaceuticals


**Essential Resources:**
1. There is no textbook for the course.
2. Class Website. The course will use a Desire 2 Learn (D2L)-based website in order to coordinate the class, communicate information, and also to deliver assignments and feedback. Details are provided at the end of the syllabus. **Please check the website and your email frequently because you are responsible for all announcements and changes to the syllabus posted there.**
3. Library work will be an important part of the course and essential to complete the assignment. In particular, the course will require extensive use of the primary scientific literature (i.e. journal articles). **Course Schedule (subject to modification):**

<table>
<thead>
<tr>
<th>Date</th>
<th>Lecture Topic</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>09/04</td>
<td>Course introduction</td>
<td></td>
</tr>
<tr>
<td>09/11</td>
<td>A bit about scientific publication and analysis of publications</td>
<td></td>
</tr>
<tr>
<td>09/18</td>
<td>Ethics in science</td>
<td>Topics for Presentations Selected by this Week</td>
</tr>
<tr>
<td>09/25</td>
<td>Presentations #1</td>
<td>Summary for paper due before class</td>
</tr>
<tr>
<td>10/02</td>
<td>Presentations #2</td>
<td>Summary for paper due before class</td>
</tr>
<tr>
<td>10/09</td>
<td>Presentations #3</td>
<td>Summary for paper due before class</td>
</tr>
<tr>
<td>10/16</td>
<td>Presentations #4</td>
<td>Summary for paper due before class</td>
</tr>
<tr>
<td>10/23</td>
<td>Presentations #5</td>
<td>Summary for paper due before class</td>
</tr>
<tr>
<td>10/30</td>
<td>Presentations #6</td>
<td>Summary for paper due before class</td>
</tr>
<tr>
<td>11/06</td>
<td>Presentations #7</td>
<td>Summary for paper due before class</td>
</tr>
<tr>
<td>11/13</td>
<td>Presentations #8</td>
<td>Summary for paper due before class</td>
</tr>
<tr>
<td>11/20</td>
<td>Presentations #9</td>
<td>Summary for paper due before class</td>
</tr>
<tr>
<td>11/27</td>
<td>NO CLASS- Thanksgiving</td>
<td></td>
</tr>
<tr>
<td>12/04</td>
<td>Presentations #10</td>
<td>Summary for paper due before class</td>
</tr>
<tr>
<td>12/11</td>
<td>Spare class (in case of weather cancellations, etc.)</td>
<td>Summary for paper due before class</td>
</tr>
</tbody>
</table>

**Grading:** Course grades are based on a series of **summaries** of scientific articles for discussion (turned in approximately weekly, in advance of the seminar, see separate Guidelines for Summaries), **presentations** of research papers and leading following discussions in class (done in class with a partner, see separate Guidelines for Presentations), and **participation in discussions** both in class and on-line following the seminars. Weighting will be: summaries =
50%; presentations = 30%; participation = 20%). Approximate conversions from percentage scores to letter grades are: A-range >80%, B-range >70%, C-range >60%, D-range >50%.

University Policies:
The Secretary of the University’s Web site that contains a complete listing of relevant University policies: http://www4.uwm.edu/secu/SyllabusLinks.pdf

In particular, your attention is drawn to the following:

Academic Misconduct: In this course, you are expected to perform to the best of your ability in an honest manner. Cheating, plagiarism, or other acts of misconduct will result in a severe penalty to you, as per University of Wisconsin System Chapter 1. http://www4.uwm.edu/acad_aff/policy/academicmisconduct.cfm

Religious observances: Policies regarding accommodations for absences due to religious observance are found at the following: http://www4.uwm.edu/secu/docs/other/S1.5.htm

Students called to active military duty: Accommodations for absences due to call-up of reserves to active military duty should be noted. http://www4.uwm.edu/academics/military.cfm

Incompletes: The conditions for awarding an incomplete to graduate and undergraduate students can be found at the following: http://www4.uwm.edu/secu/docs/other/S31.pdf

Discriminatory conduct (such as sexual harassment): Definitions of discrimination. Harassment, abuse of power, and the reporting requirements of discriminatory conduct are found at the following: http://www4.uwm.edu/secu/docs/other/S47.pdf

Complaint procedures: Students may direct complaints to the head of the academic unit or department in which the complaint occurs. If the complaint allegedly violates a specific university policy, it may be directed to the head of the department or academic unit in which the complaint occurred or to the appropriate university office responsible for enforcing the policy. http://www4.uwm.edu/secu/docs/other/S49.7.htm

Grade appeal procedures: Procedures for student grade appeal appear at the following: http://www4.uwm.edu/secu/docs/other/S28.htm

Students with Special Needs: Students with special needs should come and speak with me during the first week of classes so we can best accommodate your learning style. If you have a health condition or disability that may interfere with your attendance or your ability to complete course requirements, if you have not done so already, you should contact the Student Accessibility Resource Center (ARC http://uwm.edu/arc/services-and-accommodations/) and arrange to meet with a SAC counselor who will help you determine whether your condition qualifies you for accommodations and to complete a VISA form describing the approved accommodations. You should inform me of your need for accommodation and provide me with a copy of the completed VISA form. You are expected to complete these steps within the first three weeks of class or as soon as possible after learning of the need for accommodation, unless legitimate circumstances prevent you from doing so. If you have any questions about this process, please contact a SAC counselor.