

<p style="text-align: center;"><b>Ocean 442</b> <b>Oceanography of Puget Sound</b></p>
--

**3 credits - Fall 2004**  
**MON-WED FRI**  
**11:30 a.m. - 12:20 p.m.**  
**Ocean Sciences Building 425**

**Instructor: Rick Keil**  
**Office: Ocean Sciences Building 517**  
**phone: (206) 616-1947**  
**rickkeil@u.washington.edu**  
**office hours: Tues 11:30-1:30 p.m.**  
**or by appointment. Drop-in's welcome but**  
**advised to call first**

**<http://courses.washington.edu/pugetoce/>**  
**E-MAIL LIST-PROC: [ocean442a\\_au04@u.washington.edu](mailto:ocean442a_au04@u.washington.edu)**

**Material Requirements:**

Get a 1.5" binder to hold the packets of lecture notes that will be dispensed periodically. Bring both a pen and pencil to class in case you need to make notes in multiple shades. You will need routine access to a computer with access to the internet and you should have familiarity with spreadsheet software (e.g. Microsoft Excel). Homework assignments for this class are distributed and are to be submitted electronically. We will use UW Catalyst tools for this.

**Text Recommendations (not required, all available in library)**

Kruckeberg, Arthur R. 1991. *The natural history of Puget Sound Country*. University of Washington Press.

Strickland, Richard M. 1983. *The Fertile Fjord- Plankton in Puget Sound*. Washington Sea Grant- Puget Sound Books, University of Washington Press (currently out of print)  
Available on line at: <http://www.wsg.washington.edu/pubs/fjord/fjord.html>

Burns, Robert. 1985. *The Shape and Form of Puget Sound*. Washington Sea Grant- Puget Sound Books, University of Washington Press

**Scope of the course:**

There are three fundamental goals for the course:

1. To provide a detailed examination of Puget Sound; its geology, circulation, chemistry, biology and ecology.
2. This course introduces and practices the skills of real-world problem solving. We will develop scientific questions and attempt to answer them during our three-day research cruise.
3. To use Puget Sound as a tool for practicing the art of scientific interaction with non-scientific peers. We will write manuscripts that are scientifically sound yet accessible to a non-technical audience.

### **Class Style:**

Class periods will be used for lectures, films, guest speakers and student-led discussions. Class notes will be provided for most lectures. These lecture notes will not be posted on the web. Attendance in class is strongly advised.

### **Extracurricular activities:**

Homework assignments, readings, and peer-review will be sent and submitted electronically. The course web site will contain links to all the appropriate materials.

There is a research cruise that is more-or-less mandatory (see me if you really need to get out of it). **The dates for the cruise are Sunday October 24 – Tuesday October 26<sup>th</sup>**. We will try to get back to the UW dock on Tuesday in the early evening (say by 8pm) but no guarantees. We will work aboard the R/V Thomas G. Thompson. See the class web site for details about what to bring and not bring aboard the ship.

In class and during **the evening of Monday November 8<sup>th</sup>**, we will conduct research using the computer-based Virtual Puget Sound (VPS). Often this research assignment requires more than 50 minutes. The computer lab will be open that evening from 5-7:30 pm for finishing up the assignment. This is our only opportunity to use the VPS, as the room is heavily booked for other classes. There is no make-up opportunity if you miss this exercise.

Similarly, in class on Wednesday Nov 10<sup>th</sup> and then optionally during **the evening of Friday Nov 12<sup>th</sup>**, we will conduct research using the scale model of Puget Sound. The model will be available that evening from 5-7:30 pm for finishing up the assignment.

I can set up a **tour of the WestPoint sewage treatment facility** for interested parties. Currently, this trip is not planned as a graded portion of the course. Approach me if you'd like to see this trip scheduled.

### **Class Project:**

The special project this quarter will be the creation of a series of four articles and a short documentary exploring the current issue of hypoxia in Hood Canal. You will be clustered into four small groups. Each group will be provided with a research question pertaining to hypoxia in Hood Canal, and will:

- Develop, in writing, a research plan to attempt to answer the assigned research question during the class cruise
- Present to the class
  - Group objectives for the cruise
  - Methods and research goals
  - Group cruise plan
- Receive and incorporate peer-reviewed comments into the group cruise plan
- Participate in data collection and interpretation during the cruise
- Collate and digitize all data from the cruise
- Collaboratively write, consecutively, two draft copies of your group research paper
- Receive and incorporate peer-reviewed comments into the group manuscript
- Present orally to the class a summary of the research, results and interpretations
- \*\*\* Note that your final manuscript will be evaluated and graded by non-scientific readers such as my mom and my bowling and drinking buddies.

Groups will focus on one of the following:

- The Benthic Biology and Sediment Geology of Hood Canal: living life at the redox extreme. Note that due to UW restrictions we are prevented from catching fishes in conjunction with this course
- The Planktonic Biology of Hood Canal: Do plankton swim away from oxygen stress?
- Circulation and Tidal Processes in Hood Canal: the clogged toilet that refused to flush.
- Respiration in the Water Column versus in the Sediment: the battle of the breathers.

### **Individual Assignments, the Research Article and the Documentary**

This is a research-oriented course, as opposed to a content-oriented class. This means that I expect you to master the content so that you can study research themes and develop your intellectual curiosity. As such, there is no driver for memorizing a series of 'facts' about Puget Sound. Thus, there will be no exams given in this class (see below for the grading criteria). You will, however, be asked to complete homework assignments and to peer-review the work of your classmates.

- Individual assignments will consist of the following:
  - Creation of a personal web page for your class notes and annotated bibliographies
  - Creation of an annotated list of five web sites about Puget Sound
  - Completion of an assignment comparing the VPS to the physical Puget Sound model
  - Two electronic homework assignments
  - Peer-review of the research plan and manuscript written by your group and by the other groups
  - Grading of the effort and accomplishments of your group and of all groups
- The research article
  - Each group will work together to write a scientific article aimed at a scientifically proficient audience (i.e. someone who reads 'Scientific American' or similar magazines). More detail will be provided in class.
  - We will write two drafts of the manuscript and then one final version.
  - The final version will be open for review by non-technical readers (e.g. my mom and my drinking/bowling buddies). Their combined input will help determine your grade on this component of the class.
- The documentary
  - Rick will manage all production and direction of the documentary – this class is about the oceanography, not filmmaking. If your group develops ideas about how you would like your component to be filmed, let me know. Individuals who wish to help with the filming are encouraged to help on an *ad hoc* basis.

### **Grading Policy:**

Your peers will determine a portion of your grade, as will you theirs. You will evaluate the other members of your group individually, and you will also evaluate the performance of other groups (as groups, not as individuals). Your peer-review will weigh heavily in the assignment of ~130 of the 340 points available in the class (see the table on the next page). Peer review and group activity thus accounts for 38% of the points awarded in the class.

I modify my grading curve from year to year, but I can provide the following information as a guide. You will need to accumulate more than 70% of the points to pass the class. I do not give grades below 1.5. If you score below a 1.5 you will be given a 0.0 and you will not receive credit for the course. I try to grade you all fairly, regardless of whether you are an oceanography major or not, whether you are a graduate student or an undergraduate. Statistical analysis of past grades indicates no elevated grading of either oceanography majors or graduate students, thus it seems that you all have an equal chance of getting a good grade (or a bad one) regardless of your major or education level. Below are some statistics about my grades from previous iterations of this class:

Since 1995 (n=143):

The average grade assigned in this class when I have been the instructor: 3.15

The median grade assigned in this class when I have been the instructor: 3.30

The number of people who have failed the class: 3

Your performance will be evaluated in the following ways:

	Points	% of grade
personal web site creation and uploading of class materials	10	2.5
annotated bibliography of web sites	25	6.3
preliminary cruise plan (group)	10	2.5
final cruise plan (group)	10	2.5
Web homework 1 - geology & circulation	50	12.5
manuscript draft 1 (group)	20	5.0
Web homework 2 - Chemistry and Biology	50	12.5
VPS / PS model comparison exercise	40	10.0
manuscript draft 2 (group)	20	5.0
final manuscript (group)	30	7.5
group presentation (group)	15	3.8
your effort in peer reviewing others	40	10.0
accomplishments of your group (group)	30	7.5
participation in group (group)	20	5.0
participation in class	30	7.5
Sum	400	100.0
Sum of grouped activities	155	38.8

### Assignment due dates:

Unless otherwise noted, all electronic assignments are due at midnight and all class discussion materials etc. are to be prepared before class. Catalyst will not accept assignments posted after midnight on due dates. Late assignments are docked at a rate of 20% per day.