WATS 4510 Special Topics
Aquatic Practicum 1 - Lab Methods

Course Description

Aquatic Practicum 1 – Lab Methods “Practical potions and plankton” is a seven-week 2-credit course that will provide students with the basics of limnological field techniques, sample processing, laboratory methods, and data analysis for both water properties and organisms. The course includes one field trip where students learn to sample water, plankton, zooplankton, and sediments. Subsequent labs will use the collected samples to determine limiting nutrients, pigment composition, nutrient concentrations, and community composition. These labs will serve as bases to learn wet-lab techniques, safety, quantification, quality control, and statistical analysis. Methods and background in chromatography, fluorometry, and spectrophotometry will be covered. The major classes of phytoplankton and zooplankton and their relevance will be taught through field sampling, lab processing, identification, and analysis. Finally, students will learn how to produce a technical report.

Course Information

Professor: Janice Brahney, Janice.brahney@usu.edu
Location: TBD
Time: Monday 9-12 am
Fees: 30$ (Consumable lab supplies and field trip costs)
Prerequisite: Chem 1210, WATS 4500
Max enrollment: 10

Course Objectives

- Gain experience in limnological sampling and analyses from field to final product
- Learn field methods for water, organism, and sediment sampling and the selection of appropriate methods
- Gain experience in hypothesis testing and experimental design
- By the end of the course students will be familiar with basic wet lab techniques (transferring of liquids, pipette techniques, filtration, and safety)
- Understand the fundamental behind chromatography, fluorometry, and spectrophotometry
- Understanding analytical data – how to use and not abuse calibration curves, calculate limits of detection and quantification, error, and basic statistics

Course Materials

There is no required textbook. All necessary information will be provided in handouts prepared for each lab and lecture and on Canvas.

Useful Texts

- Wetzel & Likens. Limnological Analyses
Use Canvas!

On the course webpage, I upload the lecture, videos, chapters to read and the lecture notes (e.g. topics and ideas you should be familiar with and follow up with in the texts). I also include opportunities for you to discuss homework topics.

Marks Distribution

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
<th>Notes</th>
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<tbody>
<tr>
<td>Participation</td>
<td>5%</td>
<td>Includes putting your data up online in a timely manner</td>
</tr>
<tr>
<td>Lab Reports (6 @ 12.5%)</td>
<td>75%</td>
<td>Late reports lose 10% per day</td>
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<tr>
<td>Final Report</td>
<td>20%</td>
<td></td>
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<tr>
<td>Total</td>
<td>100%</td>
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**Attendance in all labs and field trips is mandatory**

Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1 Aug 31</td>
<td>Introduction and Field Preparation</td>
<td></td>
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<tr>
<td>Weekend 1</td>
<td>Field Trip</td>
<td></td>
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<tr>
<td>2 Sept 7</td>
<td>Labor Day</td>
<td></td>
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<tr>
<td>3 Sept 14</td>
<td>Sample handling, filtration, and Alkalinity</td>
<td></td>
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<tr>
<td>4 Sept 21</td>
<td>Pigments and chlorophyll</td>
<td></td>
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<tr>
<td>5 Sept 28</td>
<td>Nutrient bioassay experiments</td>
<td></td>
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<tr>
<td>6 Oct 5</td>
<td>Nutrient measurements</td>
<td></td>
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<tr>
<td>7 Oct 12</td>
<td>Phytoplankton</td>
<td></td>
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<tr>
<td>8 Oct 19</td>
<td>Zooplankton</td>
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Canvas Information

Canvas is the where course content, grades, and communication will reside for this course.

- [http://canvas.usu.edu](http://canvas.usu.edu)
  - Your **username** is your A#, and your **password** is your global password (the same one you use for Banner or Aggiemail).
- For Canvas, Passwords, or any other computer-related technical support contact the IT Service Desk.
  - 435 797-4357 (797-HELP)
  - 877 878-8325
  - [http://it.usu.edu](http://it.usu.edu)
  - servicedesk@usu.edu

The following grading standards will be used in this class:

**UNIVERSITY POLICIES & PROCEDURES**

**Academic Freedom and Professional Responsibilities**

Academic freedom is the right to teach, study, discuss, investigate, discover, create, and publish freely. Academic freedom protects the rights of faculty members in teaching and of students in learning. Freedom in research is fundamental to the advancement of truth. Faculty members are entitled to full freedom in teaching,
research, and creative activities, subject to the limitations imposed by professional responsibility. Faculty Code Policy #403 further defines academic freedom and professional responsibilities.

**Academic Integrity – "The Honor System"**

Each student has the right and duty to pursue his or her academic experience free of dishonesty. The Honor System is designed to establish the higher level of conduct expected and required of all Utah State University students. The Honor Pledge: To enhance the learning environment at Utah State University and to develop student academic integrity, each student agrees to the following Honor Pledge: "I pledge, on my honor, to conduct myself with the foremost level of academic integrity."

A student who lives by the Honor Pledge is a student who does more than not cheat, falsify, or plagiarize. A student who lives by the Honor Pledge:

- Espouses academic integrity as an underlying and essential principle of the Utah State University community;
- Understands that each act of academic dishonesty devalues every degree that is awarded by this institution; and
- Is a welcomed and valued member of Utah State University.

**Academic Dishonesty**

The instructor of this course will take appropriate actions in response to Academic Dishonesty, as defined the University’s Student Code. Acts of academic dishonesty include but are not limited to:

- **Cheating**: using, attempting to use, or providing others with any unauthorized assistance in taking quizzes, tests, examinations, or in any other academic exercise or activity. Unauthorized assistance includes:
  - Working in a group when the instructor has designated that the quiz, test, examination, or any other academic exercise or activity be done “individually;”
  - Depending on the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments;
  - Substituting for another student, or permitting another student to substitute for oneself, in taking an examination or preparing academic work;
  - Acquiring tests or other academic material belonging to a faculty member, staff member, or another student without express permission;
  - Continuing to write after time has been called on a quiz, test, examination, or any other academic exercise or activity;
  - Submitting substantially the same work for credit in more than one class, except with prior approval of the instructor; or engaging in any form of research fraud.
- **Falsification**: altering or fabricating any information or citation in an academic exercise or activity.
- **Plagiarism**: representing, by paraphrase or direct quotation, the published or unpublished work of another person as one’s own in any academic exercise or activity without full and clear acknowledgment. It also includes using materials prepared by another person or by an agency engaged in the sale of term papers or other academic materials.

**Sexual Harassment**

Sexual harassment is defined by the Affirmative Action/Equal Employment Opportunity Commission as any “unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature.” If you feel you are a victim of sexual harassment, you may talk to or file a complaint with the Affirmative Action/Equal Employment Opportunity Office located in Old Main, Room 161, or call the AAVEEO Office at (435) 797-1266.

**Withdrawal Policy and "I" Grade Policy**
Students are required to complete all courses for which they are registered by the end of the semester. In some cases, a student may be unable to complete all of the coursework because of extenuating circumstances, but not due to poor performance or to retain financial aid. The term ‘extenuating’ circumstances includes: (1) incapacitating illness which prevents a student from attending classes for a minimum period of two weeks, (2) a death in the immediate family, (3) financial responsibilities requiring a student to alter a work schedule to secure employment, (4) change in work schedule as required by an employer, or (5) other emergencies deemed appropriate by the instructor.

**Students with Disabilities**

Students with ADA-documented physical, sensory, emotional or medical impairments may be eligible for reasonable accommodations. Veterans may also be eligible for services. All accommodations are coordinated through the Disability Resource Center (DRC) in Room 101 of the University Inn, (435)797-2444. Please contact the DRC as early in the semester as possible. Alternate format materials (Braille, large print, digital, or audio) are available with advance notice.

Contacting the Disability Resource Center (DRC):

- On Campus: Room 101 of the University Inn
- Phone: 435-797-2444
- Website: http://www.usu.edu/drc/

Disability related resources for current students:

- DRC Student Handbook
- Deaf and Hard of Hearing Student Handbook
- Disability Related Scholarships
- Campus Resources
- Documentation Guidelines
- Online Resources for Students with Disabilities

**Diversity Statement**

Regardless of intent, careless or ill-informed remarks can be offensive and hurtful to others and detract from the learning climate. If you feel uncomfortable in a classroom due to offensive language or actions by an instructor or student(s) regarding ethnicity, gender, or sexual orientation, contact:

- Student Services: http://www.usu.edu/studentservices/, 435.797.1712, studentservices@usu.edu, TSC 220
- Student Advocates: http://www.usu.edu/ususa/legal/, 435.797.2912, TSC 340,
- Access and Diversity: http://www.usu.edu/accesscenter/, 435.797.1728, access@usu.edu; TSC 315
- Multicultural Programs: http://www.usu.edu/accesscenter/multiculture/, 435-797-1728, TSC 315
- LGBTQA Programs: http://www.usu.edu/accesscenter/lgbtqa/, 435-797-GAYS, TSC 314
- Provost’s Office Diversity Resources: http://www.usu.edu/provost/faculty/diversity/, (435) 797-8176

You can learn about your student rights by visiting:
The Code of Policies and Procedures for Students at Utah State University: http://www.usu.edu/studentservices/studentcode/

**Grievance Process**

Students who feel they have been unfairly treated may file a grievance through the channels and procedures described in the Student Code: Article VII. Grievances.

**Full details for USU Academic Policies and Procedures can be found at:**
Emergency Procedures

In the case of a drill or real emergency, classes will be notified to evacuate the building by the sound of the fire/emergency alarm system or by a building representative. In the event of a disaster that may interfere with either notification, evacuate as the situation dictates (i.e., in an earthquake when shaking ceases or immediately when a fire is discovered). Turn off computers and take any personal items with you. Elevators should not be used; instead, use the closest stairs.