

**Using Instruments and Online Interactions for Instructional Laboratory
Experiments in the Sciences
CH 584**

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This course combines approximately 90 hours of instruction, online activities, and assignments for 3 credits.

Course Description

The focus of this course is for students to examine methods and technologies for incorporating lab packs, virtual instruments and online interactions into laboratory courses and other learning environments including math classes and free choice learning settings. Research studies and practical considerations indicated that these tools can extend and augment learning opportunities that may not be otherwise accessible. In the course students will design lessons and units of instruction for grades K-20 that integrate learning with virtual instruments and online interactions to help learners grasp, visualize, and explain important science and math concepts and practices.

Prerequisites:

Basic computer literacy and one year of university-level general chemistry, physics, life science or earth science.

Course Information

This course will be delivered via Blackboard, your online learning community, where you will interact with your classmates and with the instructors. Within the course Blackboard site you will access the learning materials, tutorials, and syllabus; discuss issues; submit assignments; take quizzes; email other students and the instructor; participate in online activities; and display your projects. To preview how an online course works, visit the [Ecampus Course Demo](#). For technical assistance, Blackboard and otherwise, see <http://ecampus.oregonstate.edu/services/technical-help.htm>.

Learning Outcomes

In this course, students will:

1. Learn about the availability and implementation of lab packs, virtual instruments and online interactions for use in their instructional setting.
2. Examine the efficacy of using lab packs, virtual instruments and online interactions in their own teaching and learning practice.
3. Create lab exercises and assessments for incorporating lab packs, virtual instruments, and online interactions to support understanding of science and/or math practices and concepts in their instructional setting. This will include linking use of materials with state and national standards appropriate for their educational setting (e.g., for K-12 teachers Math Common Core, Next Generation Science Standards and the National Educational Technology Standards).

Course Materials

Subscriptions (fee and free) to current virtual instruments. No textbook is required.

Academic Expectations

Participants are expected to:

- Login to the class site daily, prepared to engage in dialogue with colleagues
- Prepare materials and think critically about resources
- Demonstrate clarity of ideas, application of knowledge, and appropriate and relevant contributions in class discussion
- Exhibit insight and reflection through self-evaluation
- Prepare assignments, delivered on time, that meet all the criteria and graduate writing standards
- Recognize and respect the ideas and skills of colleagues and experienced professionals
- Participate actively and positively in class activities
- Identify and engage other professionals, networks, organizations, and other resources related to the issues discussed in the class.

Class Schedule

Weeks	Topics
Weeks 1-3	Introductions Prep for Lab Activity 1 Science Practices and Standards Distance Delivery of Science Labs Pedagogy
Weeks 4-6	Lab Activity 1: Distance labs from student perspective – “teacher as student”
Weeks 7-8	Lab Activity 2: Distance labs from instructor perspective – “teacher as teacher”
Week 9-10	Lab Activity 3: Modify regular lab for distance delivery

This schedule is subject to change. See summary schedule in Start Here folder for details on learning activities and assignments

Required Assignments

Weeks	Topics
Weeks 1-3	Introductions Prep for Lab Activity 1 Science Practices and Standards Distance Delivery of Science Labs Pedagogy
Weeks 4-6	Lab Activity 1: Distance labs from student perspective – “teacher as student”
Weeks 7-8	Lab Activity 2: Distance labs from instructor perspective – “teacher as teacher”
Week 9-10	Lab Activity 3: Modify regular lab for distance delivery

Evaluation of Student Performance

Students will be evaluated on meaningful and thoughtful participation on discussion forums, short papers, narrated presentations and/or videos and a final project. Specific point value is outlined in the Summary Schedule found in the Start Here folder as well as on the details for each unit.

Grading scale based on 700 points:

Course Grade	Point Range
A	644-700
A-	630-643
B+	616-629
B	574-615
B-	560-573
C+	546-559
C	504-545
C-	490-503
D+	476-489
D	434-475
D-	420-433
F	0-419

All assignments are due on the date provided on each assignment. Late assignments will not be accepted unless previous arrangements have been made with the instructors.

Statement of Expectations for Student Conduct:

Please see the website on Student Conduct and Community Standards for student expectations.

<http://oregonstate.edu/studentconduct/student-conduct-community-standards-sccs>

Statement Regarding Students with Disabilities:

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 737-4098.

<http://oregonstate.edu/dept/budgets/genupol/gupdissu.htm>

Plagiarism

Students are expected to comply with all regulations pertaining to academic honesty, defined as: *An intentional act of deception in which a student seeks to claim credit for the work or effort of another person or uses unauthorized materials or fabricated information in any academic work.* For further information, visit [Avoiding Academic Dishonesty](#), or contact the office of Student Conduct and Mediation at 541-737-3656.

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.”

Conduct in this online classroom

Students are expected to conduct themselves in the course (e.g., on discussion boards, email postings) 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 themselves. Disrespectful behavior to others (such as harassing behavior, personal insults, and inappropriate language) or disruptive behaviors in the course (such as persistent and unreasonable demands for time and attention both in and out of the classroom) is unacceptable and can result in sanctions as defined by Oregon Administrative Rules [Division 015 Student Conduct Regulations](#)

Student Evaluation of Teaching

We encourage you to engage in the course evaluation process each term – online, of course. The evaluation form will be available toward the end of each term, and you will be sent instructions through ONID. You will login 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.

***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 Blackboard site for enrolled students and may be more current than this sample syllabus.*

Tutoring

For information about possible tutoring for this course, please visit our Ecampus NetTutor page:

<http://ecampus.oregonstate.edu/services/student-services/online-tutoring/>

2013 Student Conduct Code and plagiarism

http://arcweb.sos.state.or.us/pages/rules/oars_500/oar_576/576_015.html

2012 Ecampus Course Demo link:

<http://ecampus.oregonstate.edu/coursedemo/>

Computer HelpDesk <http://oregonstate.edu/is/tss/och/>

Student Conduct and Community Standards page for Academic Dishonesty: offences page:

<http://oregonstate.edu/studentconduct/http%3A/%252Foregonstate.edu/studentconduct/code/index.php#academic>

<http://guides.library.oregonstate.edu/subject-guide/1771-Academic-Integrity-for-Students>

<http://oregonstate.edu/studentconduct/offenses>

Student Conduct and Community Standards: <http://oregonstate.edu/studentconduct/feature-stories/student-conduct-code>

<http://oregonstate.edu/studentconduct/mission>

Student Conduct Home: <http://oregonstate.edu/studentconduct/>

AR-15: Honesty in Academic Work:

<http://catalog.oregonstate.edu/ChapterDetail.aspx?key=75#Section2883>

DAS home: <http://ds.oregonstate.edu/home/index.php>

Definition of Academic Integrity: <http://ica.library.oregonstate.edu/subject-guide/1771-Academic-Integrity-for-Students>

Definition of Academic Integrity

At OSU academic integrity is defined as the following: “(a) upholding the standards of the academic discipline of which you are a part, (b) honesty in all academic processes and accomplishments, (c) respect for and appropriate use of the work of others, (d) taking responsibility for your own work, and (e) accountability to protect personal academic work from misuse by others” (Student Conduct and Community Standards, 2012, *Academic Integrity Course*)

Avoiding Plagiarism (from ANTH Dept) – bad file though. Copied and in My Docs.

<http://oregonstate.edu/cla/anthropology/sites/default/files/pdf/avoiding-plagiarism.pdf>

University Libraries plagiarism tutorial: <http://www.lib.usm.edu/legacy/plag/plagiarismtutorial.php>