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.

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

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

PREREQUISITES, CO-REQUISITES AND ENFORCED PREREQUISITES
Basic computer literacy and one year of university-level general chemistry, physics, life science or earth science.

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.

CONTACT INFORMATION:
Dr. Richard L. Nafshun
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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:
Subscriptions (fee and free) to current virtual instruments. No textbook is required.

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:

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 CONTENT AND POLICIES:
This course will be delivered via Canvas, your online learning community, where you will interact with your classmates and with the instructors. Within the course Canvas 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, Canvas and otherwise, see http://ecampus.oregonstate.edu/services/technical-help.htm.

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.

Topics
Introductions
Prep for Lab Activity 1
Science Practices and Standards
Distance Delivery of Science Labs Pedagogy
Lab Activity 1: Distance labs from student perspective – “teacher as student”
Lab Activity 2: Distance labs from instructor perspective – “teacher as teacher”
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 total points.

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.

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

This course is offered through Oregon State University Extended Campus. For more information, contact:
Web: ecampus.oregonstate.edu  Email: ecampus@oregonstate.edu  Telephone: 800-667-1465
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.