

Course Number and Title

IDH 3931 Cross-Disciplinary Scientific Teaching (Transcript Title: X-Sci Teaching)
Section 18B1

Course Description

An introduction to the theory and practice of scientific teaching in a cross-disciplinary science environment. Students will apply a scientific approach to science teaching, including reading relevant literature, experimenting with active learning approaches, and quantitatively measuring learning outcomes. Restricted to students who have completed the X-Laboratory curriculum.

This course is designed for students who have completed the X-Lab program and are interested in developing their knowledge and skills in cross-disciplinary scientific teaching through readings, discussion, curriculum development, and practice as an undergraduate teaching assistant.

Credit Hours

1 or 2 CR

Prerequisites

ISC2400L (A) & ISC2401L (A)

Instructors

Gabriela Waschewsky waschewsky@ufl.edu SIS A229A (352) 294-3994

David Julian djulian@ufl.edu 123 Bartram Hall (352) 392-5878

Office hours: by appointment

Course Meeting Times and Locations

Each student will be assigned as an undergraduate teaching assistant to one of the following sections at the times and in the (classroom) indicated:

Mondays and Wednesdays

Periods 6-8: X-Lab 1

Periods 10-E1: X-Lab 1

Tuesdays and Thursdays

Periods 2-4: X-Lab 1

Periods 6-8: X-Lab 1

Periods 10-E1: X-Lab 1

Periods 5-7: X-Lab 2

Periods 9-11: X-Lab 2

In addition, X-Sci Teaching instructors and students will meet once a week for one period of discussion; the meeting time will be determined by students' schedules.

Student Responsibilities

Students will be expected to arrive prepared for the discussion by reading the assigned textbook chapter and completing other pre-discussion assignments.

In addition, students are expected to arrive on time for their undergraduate teaching assignment, which may begin before the start of the lab period, and stay until dismissed by their graduate student mentor.

Required Materials for Undergraduate Teaching Assistants in the X-Lab

1. **Safety Glasses.** Any UF-approved safety eyewear. Appropriate safety eyewear is available at the UF bookstore.
2. **Lab Coat.** A knee-length lab coat with full-length sleeves is required.
3. **Proper Attire.** You are required to wear loose-fitting long pants or long skirt and closed-toed shoes in addition to your lab coat.

Textbook (required)

Scientific Teaching. J Handelsman, S Miller, and C Pfund. WH Freeman and Company, NY. 2007.

Course Objectives:

1. The student will be introduced to major theories of learning through close reading of primary literature in science education.
2. The student will learn to apply the scientific method as a model for developing and implementing evidence-based teaching in a cross-disciplinary laboratory course environment.
3. The student will develop a personal teaching philosophy statement that includes teachable units and incorporates key terms and models of learning theory.
4. The student will create a teachable unit suitable for use in a cross-disciplinary laboratory course, including the incorporation of assessable learning outcomes and a grading rubric.
5. The student will work as an undergraduate teaching assistant in the cross-disciplinary laboratory program (X-Lab), supervised by a graduate teaching assistant mentor.

Weekly Schedule of Discussion Topics:

1. Models for Learning in Science
2. Learning Goals and Hierarchies
3. Learning Outcomes and Outcomes Assessment Strategies
4. Developing and Applying Rubrics
5. Active Learning Methods
6. Alignment of Learning Outcomes and Goals
7. Framework for Constructing a Teachable Unit
8. Incorporating Backward Design
9. Teachable Unit Proposal
10. Teachable Unit Development (work individually or in groups)
11. Teachable Unit Development (work individually or in groups)
12. Teachable Unit Development (work individually or in groups)
13. Teachable Unit Peer Review
14. Teachable Unit Presentations
15. Teachable Unit Presentations

Credit:

For one (1) credit, a student will create a teachable unit on a single theme for part or all of just one laboratory session. For two (2) credits, a student will create a teachable unit on a single theme that spans several laboratory sessions.

Grading Scheme:

- Teaching philosophy: 5%
- Learning Goals for Teachable Unit: 5%
- Outcomes for Teachable Unit: 5%
- Rubric for Teachable Unit: 5%
- Peer Review of Teachable Unit: 10%
- Oral Presentation of Teachable Unit: 10%
- Final Teachable Unit: 20%
- Supervised teaching: 40%

Grading Scale

| Point Range (%) | Letter Grade | GPA equivalent |
|-----------------|--------------|----------------|
| ≥ 93.3 | A | 4.00 |
| 90.0 – 93.2 | A- | 3.67 |
| 86.7 – 89.9 | B+ | 3.33 |
| 83.3 – 86.6 | B | 3.00 |
| 80.0 – 83.2 | B- | 2.67 |
| 76.7 – 79.9 | C+ | 2.33 |
| 73.3 – 76.6 | C | 2.00 |
| 70.0 – 73.2 | C- | 1.67 |
| 66.7 – 69.9 | D+ | 1.33 |
| 63.3 – 66.6 | D | 1.00 |
| 60.0 – 63.2 | D- | 0.67 |
| < 60.0 | E | 0 |

Attendance Policy

Attendance during every lab session is required for the full duration of the session or until dismissed. Students must be present in the lab at the beginning of the lab session; late arrivals may be counted as an absence, at the instructor's discretion.

The first lab session of the term is mandatory. If you miss this lab session, you will be dropped from the course unless you contact the course coordinator before the last day of add/drop.

An unexcused absence from any lab session will result in the loss of all the points/credit available for that session. A second unexcused absence will result in an automatic and non-negotiable reduction of one letter grade for the course. More than two unexcused absences will result in a failing course grade.

The policies for allowable absences follow the university policies:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>. Except in the case of emergencies, excused absences must be negotiated in advance with the instructor and will follow UF attendance policy. In the case of an excused absence the student is responsible for contacting the instructor, who will determine an appropriate make-up activity.

Health and Wellness Resources

- U Matter, We Care: If you or a friend is in distress, please contact umatter@ufl.edu or (352) 392-1575 so a team member can reach out to the student

- UF Counseling & Wellness Center: <http://www.counseling.ufl.edu/cwc/Default.aspx>, 3190 Radio Rd, 392-1575,
- Sexual Assault Recovery Services (SARS): Student Health Care Center, (352) 392-1161

Academic Resources

- e-Learning technical support: (352) 392-4357 (select option 2) or email to Learning-support@ufl.edu. <https://lss.at.ufl.edu/help.shtml>
- Career Resource Center, Reitz Union, (352) 392-1601. Career assistance and counseling. <http://www.crc.ufl.edu>
- Library Support: <http://cms.uflib.ufl.edu/ask> Get help using the libraries.
- Teaching Center: Broward Hall, (352) 392-2010 or 392-6420. General study skills and tutoring. <http://teachingcenter.ufl.edu>
- Writing Studio: 302 Tigert Hall, (352) 846-1138. Help brainstorming, formatting, and writing papers. <http://writing.ufl.edu/writing-studio>
- Student Complaints Campus: https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf

Honesty Policy

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied:

“On my honor I have neither given nor received unauthorized aid in doing this assignment.”

The Honor Code (<http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructors in this class.

Accommodation for Students with Disabilities

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodations. Students with disabilities should follow this procedure as early as possible in the semester.

Instructor and Course Evaluation

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.