

Science Education 490 Laboratory/Field Experience in Elementary Science
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When: Spring 2017
Where: Mon/Wed: 13:00–15:00; SL 230 or Columbia Elementary School
Fri: 13:00–14:50; SL 230
Credit Hours: 3 credits
Prerequisite: SCED 480
Professor: Alejandro Acevedo-Gutiérrez, BIOL309, 650-3653
Office Hours: T 12:30-13:00, W 11:30-12:00 h, R 10:00-10:30 and by appointment
Email: acevedo@biol.wvu.edu

SCED49- is a field-based experience in which you teach science in an elementary classroom and participate in weekly seminars. The focus of this course is planning, teaching and assessing elementary science lessons in a real classroom: Happy Valley Elementary School. Teams of 2-3 students (known as teaching groups) will plan and carry out appropriate lessons for the assigned grade levels.

COURSE OBJECTIVES

A. Effective Science Teaching

- **Curriculum:** You will adapt an assigned research-based curriculum to create a coherent science unit. It is strongly recommended that you do not create any new curriculum for this practicum. Lesson plans will be explicitly related to the *K-12 Next Generation Science Standards (NGSS)*. Some WWU class time will be provided for planning lessons; however, time outside of class will be necessary to prepare adequately.
- **Instruction:** You will demonstrate knowledge of a variety of methods effective in the teaching of science. You will emphasize *hands-on/minds-on* and *inquiry-based* teaching methods as introduced in SCED 480 and science teaching approaches derived from *How People Learn* and NCOSP's *Science Classroom Observation Guide* presented as the Supervising Teacher Feedback Form.
- **Assessment:** You will develop an authentic classroom assessment strategy appropriate to the science topic and grade level. The assessment will include identifying the key learning targets and the “big idea” for their unit, delivering a pre-assessment, tracking progress with assessments for learning, and creating a post-assessment.

B. Professional Growth

You will become a better teacher of science. The cooperating teacher will assist each student in evaluating progress through regular informal feedback sessions. Regular attendance and participation in weekly seminars will also contribute towards this reflective goal.

ASSIGNMENTS AND COURSE EVALUATION

Learning Progressions (15 points, group grade). You will develop a framework within which you will be teaching the children: what, why and how, and outline the sequence of learning that students need to acquire in order to reach each learning target at the end of the quarter. This is a crucial assignment because you need to determine what you want students to learn throughout the quarter and how you want to assess them at the beginning and end of the course.

Reflection Papers (15 points total, individual grade). You will complete a paper reflecting on their initial visit to the cooperating classroom as it relates to the *Supervising Teacher Feedback Form* (5 points). At the end of the quarter, you will complete a paper reflecting on your growth as a teacher of science (10 points). The first reflection paper will be ungraded; yet, you will need to turn it in time to receive credit.

Pre- and Post-Assessment Lessons and Reflections (15 points total, group grade). Each group will develop a teaching schedule for their unit during the first two weeks. The groups will prepare two group lesson plans to be submitted at least 2 days prior to teaching for review by the WWU instructor and the

cooperating teacher: pre-assessment (lesson 1) and post-assessment (lesson 8). The group will turn in the two lessons at the same time for feedback; both will be ungraded, yet you will need to turn them timely to receive full credit (5 points). Once the lesson is taught, the group will turn in a revised lesson with an individual reflection to keep the full 5 points. At the end of the course, the group will turn in a post-assessment lesson, which will be graded (10 points). Once the lesson is taught, the group will turn in a revised version with a reflection to keep the full 10 points.

Teaching Lessons and Reflections (25 points total, individual grade). With support from their helper teachers, a **lead** teacher will teach four to six days in the quarter. Each student will be responsible for preparing lesson plans to be submitted at least 2 days prior to teaching for review by the WWU instructor and the cooperating teacher. The lessons will cover 2 days in the classroom and will be written by the lead teacher(s) according to the template on Canvas. Once a teaching day is over, the lead teacher will turn in monitoring notes (see below and schedule); once the lesson is over (after two days) the lead teacher will turn in a revised lesson with a reflection and monitoring notes (see below and schedule). All lessons will be graded (10 points each).

NOTE: You might be able to use lessons written in SCED480 for your teaching in SCED490. However, there is no guarantee that this will be the case, so you need to be ready to teach something different.

As part of the grade regarding teaching lessons, you will also demonstrate growth in the ability to promote science learning in the classroom. This growth includes demonstration of strategies outlined in the Professor Feedback Form, especially incorporating the feedback provided by the professor after observing your classroom teaching.

Monitoring Notes (5 points, individual grade). During teaching lessons you will complete monitoring notes. The lead teacher will pose a question for assessment for learning that she/he and the “helper teachers” will ask students during the lesson. The group will write down children’s responses to that question in the form of *monitoring notes*. These responses will be used for any necessary adjustments to the lesson. The monitoring notes must be turned in after each teaching day. To receive 5 points, all monitoring notes are to be turned in and must include evidence of each student’s response. (You can scan the notes and email them to me or photocopy them and give them to me when they are due.) Points will be subtracted if not all notes are turned in OR if each student’s response is not clearly identified. NOTE that the monitoring notes refer to assessment for learning (during the lesson) and NOT to pre- (before the lesson) or summative (at the end of the lesson) assessments.

Suggestions for SCED490 students (5 points total, group grade). Your group will offer suggestions to future SCED490 students on how to succeed in the elementary classroom and the course.

Presentation: Evidence of Student Learning Project (10 points, group grade). Each group will be responsible for planning an entire assessment cycle including identifying the key learning targets and delivering pre-assessments, assessments for learning, and post-assessments. Each group will give a presentation summarizing the student learning. Samples of student work are required to be used as data to support the analysis. The group will be graded on how well it selects and interprets the student work.

Attendance & Participation (10 points, individual grade). Along with being an active participant in the classroom, communication with the instructor, classroom teacher, and teaching partners, and completing assignments on time is an essential part of demonstrating responsibility and building a reflective practice. Attendance is hence mandatory and includes all school days and WWU classes. **Two absences for whatever reason will result in a one-step loss of grade (e.g., A- to B-).**

Learning Objective	Indicators of Performance (assessment for learning)	Evaluators of Performance (summative assessment)
Students will adapt an assigned research-based curriculum to create a coherent science unit.	-Pre-assessment lesson plan. -Initial post-assessment lesson plan. -Teaching lesson plans.	-Learning progressions. -Final post-assessment lesson plan. -Teaching lesson plans.
Students will demonstrate knowledge of a variety of methods effective in the teaching of science.	-Pre-assessment lesson plan. -Initial post-assessment lesson plan. -Professor feedback forms. -Teaching lesson plans.	-Learning progressions. -Final post-assessment lesson plan. -Teaching lesson plans. -Professor feedback forms. -Student learning project.
Students will develop an authentic classroom assessment strategy appropriate to the science topic and grade level.	-Pre-assessment lesson plan. -Initial post-assessment lesson plan. -Teaching lesson plans.	-Learning progressions. -Final post-assessment lesson plan. -Teaching lesson plans. -Monitoring notes. -Student learning project.
Students will progress in their understanding of teaching science and performance as science teachers.	-Professor feedback forms. -Initial reflection paper.	-Professor feedback forms. -Final reflection paper.

RESPONSIBILITIES

I am responsible for helping you be a better science teacher. You should expect the following from me:

1. Clarification of learning objectives and criteria needed to succeed in the class: sharing learning objectives and examples of prior student assignments.
2. Innovative learning activities that allow you to construct and expand your understanding of what is needed to become an excellent science teacher: assignments and class discussions.
3. A supportive and inclusive learning environment and instructor that cares deeply about your performance, stimulates your interest and motivates you with a positive, engaging, and friendly classroom atmosphere that respects individuals; and provides constructive, timely and productive feedback on your work.
4. Opportunities for you to become a learning resource to one another: observing classmates' teaching and providing constructive feedback to them.
5. Opportunities to monitor your own learning and become aware of your understanding: reflection papers and reflections of lesson plans.

SHARED RESPONSIBILITIES

	Where the learner is going	Where the learner is	How to get there
Teacher	1. Clarification of learning objectives and criteria needed to succeed in the class, including why it is important to learn it.	2. Engineering innovative learning activities that allow learner to construct knowledge and elicit evidence of learning.	3. Providing a supportive learning environment and constructive feedback that moves learner forward.
Peer	4. Activating students as learning resources for one another, including providing constructive feedback and encouragement.		
Learner	5. Becoming owner of her/his own learning, including being motivated, curious and responsible.		

EXPECTATIONS

Please keep in mind that you are professionals. This should be evident in your behavior and appearance. You are guests in the elementary school, but are also integral members of the teaching team. Make sure to maintain consistent communication with your cooperating teacher at Happy Valley Elementary. This experience may lead to a student teaching placement. This is a real chance for you to shine! It is recommended that you elicit feedback whenever possible from your classroom teacher. If they perceive you as a sincere educator, they are more likely to work with you to improve your professional skills.

GRADING SCALE

95% or greater:	A	78-81%:	B-	66-68%:	D+
90-94%:	A-	75-77%:	C+	63-65%:	D
86-89%:	B+	72-74%:	C	60-62%:	D-
82-85%:	B	69-71%:	C-	below 60%:	F

Assignments are due at 17:00 PST (unless otherwise stated), email them to acevedo@biol.wvu.edu, Alejandro.Acevedo-Gutierrez@wvu.edu, or through Canvas.

Look for guidelines, templates and examples for the assignments on Canvas (Folder Assignments).

Academic Dishonesty Policy

Western Washington University students are responsible for reading, understanding, and following the policy and procedures regarding academic dishonesty as set forth in the *WWU Academic Dishonesty Policy and Procedure* (see Appendix D of the University Bulletin).

<http://catalog.wvu.edu/content.php?catoid=7&navoid=1014>

Reasonable Accommodation Policy

It is the policy of Western Washington University to provide reasonable accommodation to the known physical, sensory, or mental limitations of qualified individuals except where such accommodation would impose undue hardship on the institution. To request accommodation, students must contact WWU disability Resources for Students at 360-650-3844 or www.wvu.edu/depts/drs/

Inclusiveness

Students in this class are encouraged to speak up and participate during class meetings. This class will represent a diversity of individual beliefs, backgrounds, and experiences. Thus, each one of us will show respect for every other member of the class and the elementary school.

References:

Next Generation Science Standards

<http://www.nextgenscience.org/next-generation-science-standards>

You need to really understand them so explore the website in detail.

Pratt, H. 2012. The NSTA's Reader Guide to a Framework for K-12 Science Education. NSTA Press, Arlington, VA.

How People Learn: Brain, Mind, Experience and School

<http://www.nap.edu/openbook.php?isbn=0309070368>

Changes might be made to the syllabus along the course. These changes will be announced in advance.