Sciencia Education 490
Laboratory/Field Experience in Elementary Science
Preparing thoughtful, knowledgeable, and effective educators for a diverse society.

When: Winter 2016
Mon/Wed, and five Fridays: 1:00-2:50
Where: SL260 (SMATE Conference Room) or Geneva Elementary
Credit Hours: 3 credits
Prerequisite: SCED 480
Instructor: Tammy Q. Tasker
Email: tammy.tasker@wwu.edu
Office Hours: Friday: 3-4, or by arrangement

Course Description
SCED490 is a field-based experience in which WWU students teach science in an elementary classroom. The focus of this course is planning, teaching and assessing elementary science lessons with an authentic audience.

Course Objectives
A. Effective Science Teaching
   • Curriculum: Pre-service teachers will use documents such as standards & curriculum to organize and teach a unit of study around a big idea. They will:
     A. Identify big idea/concept
     B. Develop a storyline/learning progression of sub-concepts that will lead to big idea
     C. Help students connect the sub-concepts to building the bigger idea
     *It is strongly recommended that students do not create any new curriculum for this practicum. While some WWU class time will be provided for planning lessons, time outside of class will be necessary in order to adequately prepare.
   • Instruction: Pre-service teachers will design and teach effective science lessons that:
     A. State clear learning targets of lesson (for Nature of Science and for content)
     B. Elicit initial ideas
     C. Communicate learning target
     D. Engage students with phenomena/data
     E. Use evidence to create claims and critique claims of others
     F. Lead students to make sense of the lesson
     G. Apply science concepts in a new context
   • Instruction: Pre-service teachers will differentiate instruction for individual learners by:
     A. Identifying academic language, and teach appropriate academic language
     B. Making accommodations for students who lack grade level literacy skills
   • Assessment: Pre-service teachers will develop and administer an assessment plan for the unit and lessons incorporating pre-assessment, formative assessment and summative assessment.

B. Professional Growth
   • Pre-service teachers will reflect on their experience and growth over the course of the quarter. Students are expected to progress in their understanding of, and performance as excellent science teachers. The cooperating teacher and instructor 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 (Shown with weighting in parentheses)

1. **Reflection Papers:** *(20%)* Each student will complete a paper reflecting on their initial visit to the cooperating classroom as it relates to the *Observation Guide*. At the end of the quarter, each student will complete a paper reflecting on his/her personal growth as a teacher of science. See details posted on Canvas.

2. **Learning Progression:** *(15%)* Each group will develop a Learning Progression for their science kit, which will serve as an outline for their instruction. Required components of the Learning Progression are: a Big Idea Statement, a logical sequence for lessons that build up to that Big Idea, and Learning Targets for each lesson they plan to teach.

3. **Lesson Planning and Reflection:** *(40%)* Each group will develop a teaching schedule for their unit in the first week of class. With support from their helper-teachers, a lead teacher will prepare individual lesson plans to be submitted prior to teaching for review by the WWU instructor and the cooperating teacher. Once the lesson is taught, the lead teacher will turn in a final version of the lesson plan with a reflection based on the experience and student assessments. The lead teacher will prepare two-lessons in a row, in case a lesson requires more than one day to complete. See lesson plan guidelines posted on Canvas for details.

4. **Evidence of Student Learning Project:** *(15%, group grade)* Each teaching group will be responsible for planning an entire assessment cycle including identifying the key learning targets and delivering pre-assessments, formative assessments, and post-assessments. Each group will give a presentation summarizing the student learning in their classroom. Samples of student work are required to be used as evidence to support the analysis. The group will be graded on how well it selects and interprets the data (student work). See assignment guidelines posted on Canvas.

5. **Teaching Effectiveness, Participation, & Effort:** *(10%)* Each student will demonstrate growth in the ability to promote science learning in the classroom. This includes demonstration of strategies outlined in the *Observation Guide*. Feedback on classroom teaching will be given by the instructor and cooperating teacher throughout the quarter. Each student is responsible for supporting their group members in lesson planning, delivery and assessment, as well as in preparation and delivery of the Evidence of Student Learning Project. Students are expected to take into consideration feedback on lesson plans and teaching strategies, and communicate professionally with the instructor and cooperating teachers. There will also be opportunities to participate and reflect in individual reflections and whole group discussions as we discuss relevant topics and share our experiences in the classroom.

Grades will be calculated according to the following scale:

- **A** 94-100%
- **A-** 90-93%
- **B+** 87-89%
- **B** 84-86%
- **B-** 80-83%
- **C+** 77-79%
- **C** 74-76%
- **C-** 70-73%
- **D+** 67-69%
- **D** 64-66%
- **D-** 60-63%
- **F** <60%
**Policies and expectations**

**Attendance:** Failing to attend class, whether at WWU or the participating school, does a disservice to you, your classmates and the elementary students. An excused absence must have a valid reason and the instructor must be contacted prior to class. Valid reasons include:

- If you are ill and don’t feel well enough to participate in class and/or are contagious,
- A planned trip away from campus that is associated with a school organization (e.g., you are a WWU soccer player traveling to a game in Ellensburg), or
- A family emergency (a letter from the Office of Student Life documenting that the student’s absence from the university is excused will need to be provided after the fact.)

Reasons that are not valid include:

- A family vacation for which your plane ticket was already purchased,
- A dentist appointment,
- Going to the office hours of the instructor for one of your other classes, etc.

In general: you must contact your instructor ahead of time, and you should not assume that an absence can be counted as excused. Each unexcused absence will drop your course grade by 3%. If a student has more than three absences, excused or unexcused, he or she will not be able to pass the course.

**Professionalism:** Please keep in mind that you are a professional. This should be evident in your behavior and appearance. You are a guest in an elementary school, but are also an integral member of the teaching team. It is your responsibility to communicate with the cooperating teacher about lesson plans in a timely fashion. 5% will be subtracted from a student’s final grade for each instance of unprofessional conduct, including lack of timely communication. It is also recommended that you elicit feedback whenever possible from your cooperating teacher. If they perceive you as a sincere educator, they are more likely to work with you to improve your professional skills.

**Academic Honesty Policy**

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

**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.wwu.edu/depts/drs/

**References:**

*How People Learn: Brain, Mind, Experience and School*


*Benchmarks for Science Literacy (AAAS Project 2061)*, Oxford (1993) [Benchmarks]

http://www.project2061.org/tools/benchol/bolintro.htm

http://www.nap.edu/openbook.php?record_id=9596

*Next Generation Science Standards (NGSS)*

http://www.nextgenscience.org/next-generation-science-standards
Science Ed 490 – Tammy Q. Tasker, tammy.tasker@wwu.edu
Winter, 2016: M/W: 1-3 Geneva Elementary (some Fridays – see proposed schedule below)

Science Ed 490 is a field-based experience in which WWU students teach science in an elementary classroom. The focus of the course is planning, teaching, and assessing elementary science lessons with an authentic audience.

Expectations of WWU Students:
- Work in groups of 2 or 3 to teach a science curriculum selected by their cooperating teacher. Each week a lead teacher is responsible for planning, teaching and assessing the lesson(s).
- Act as science teachers, and exhibit professional qualities in the school and classroom.
- Send cooperating teachers a copy of draft and final lesson plans.
- Communicate any scheduling changes in advance, when possible. For example, an absence due to illness, change in teaching order, etc.
- Come prepared (physically and mentally) and clean up following lesson.

Expectations of Cooperating Teacher:
- Provide lesson feedback using the Observation Guide provided. Students will identify an area of science instruction for you to focus your feedback on, but feel free to comment in any/all sections.
- Provide materials students need to complete lessons from kit: kit supplies, student notebooks, student copies, markers, scissors, etc.
- Assist WWU students with classroom management so that students can focus on effective science instruction. Don’t be afraid to get involved.
- Communicate with your WWU students and Tammy Tasker any changes in advance, when possible. For example: substitutes, scheduling conflicts such as assemblies, field trips, etc.
- Communicate with Tammy Tasker any questions or concerns regarding WWU students or the course. For example: Professionalism, format of lesson plan, etc.
- Be available if students have questions about materials, curriculum, or feedback.

Expectations of Instructor:
- Provide feedback on student lesson plans before lesson is taught
- Provide feedback using the Observation Guide, usually once a week.
- Communicate with Cooperating Teachers and students so that things run smoothly

Geneva Visits:

<table>
<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 11</td>
<td>M</td>
<td>Initial Observation</td>
</tr>
<tr>
<td>Jan 20</td>
<td>W</td>
<td>Pre-assessment</td>
</tr>
<tr>
<td>Jan 27</td>
<td>W</td>
<td>Lesson 1</td>
</tr>
<tr>
<td>Jan 29</td>
<td>F</td>
<td>Lesson 1 [Replaces teaching time missed on CT workday Jan 25th]</td>
</tr>
<tr>
<td>Feb 1</td>
<td>M</td>
<td>Lesson 2</td>
</tr>
<tr>
<td>Feb 3</td>
<td>W</td>
<td>Lesson 2</td>
</tr>
<tr>
<td>Feb 8</td>
<td>M</td>
<td>Lesson 3</td>
</tr>
<tr>
<td>Feb 10</td>
<td>W</td>
<td>Lesson 3</td>
</tr>
<tr>
<td>Feb 17</td>
<td>W</td>
<td>Lesson 4</td>
</tr>
<tr>
<td>Feb 19</td>
<td>F</td>
<td>Lesson 4 [Replaces teaching time missed on Presidents Day Feb 15th]</td>
</tr>
<tr>
<td>Feb 22</td>
<td>M</td>
<td>Lesson 5</td>
</tr>
<tr>
<td>Feb 24</td>
<td>W</td>
<td>Lesson 5</td>
</tr>
<tr>
<td>Feb 29</td>
<td>M</td>
<td>Lesson 6</td>
</tr>
<tr>
<td>Mar 2</td>
<td>W</td>
<td>Lesson 6</td>
</tr>
<tr>
<td>Mar 7</td>
<td>M</td>
<td>Post-assessment</td>
</tr>
</tbody>
</table>
Kit use policy for SCED 490

The full STC, FOSS, & GEMS (black& white, red, yellow, orange, green or purple large bins or drawers) kits in the LRC are intended to be used only in the LRC for study, planning, and reflection purposes. SMATE does not have the resources to refurbish the materials in the kits every quarter. The kit teacher guides and student books are also to be used only in the LRC. If the guides are removed, they will not be available for other students. The teacher guides should be kept intact. Do not remove individual lessons or units except to copy and return the pages to the notebook immediately after copying is complete.

In order of priority, the list below describes possible uses of materials during SCED 490. When in doubt, ask your instructor.

1. The top priority is to use the materials, teacher guides, workbooks, and handouts available in your participating school. They should have everything you need. Coordinate with your classroom cooperating teacher to identify where the kit is located.

2. If your participating school classroom does not have a kit, check with the cooperating teacher to see if some materials, the teacher guide, and/or student handouts are available from another classroom within the school.

3. If your classroom/school does not have access to the materials in a kit investigation, pre-assembled materials for that investigation may be available. Look for the investigation in clear plastic bins on the shelves next to SL 210. Do not take selected materials from a bin. CHECK OUT THE ENTIRE BIN. If you only need a few things, see #4 below. *After the lesson is over, please put a note on the bin listing the materials used, missing or damaged so SMATE can resupply as necessary.*

4. If the classroom/school has access to none or only some of the materials in a kit investigation, assemble the missing materials for the lessons you will be teaching from the LRC stockroom and check them out at the check-out desk. Plastic bins are available in the stockroom to use for transporting to/from the school.

5. The class copy card can be checked out to make master copies that you can then use to make copies at your school. It cannot be used to copy the entire lesson or make multiple copies for your classroom.

*You are responsible for making sure all checked-out items return to SMATE on time. They are not for your cooperating classroom teacher to use after the quarter is over. You must return all materials back to SMATE.*
SCED 490 Lesson Plan Guidelines

General Responsibilities
1. You will complete one lesson plan for each week (2 days) you are assigned to teach.
2. Lesson plans are to follow the lesson plan template and should read so that your cooperating teacher or group members could teach the lesson if needed.
3. Following the lesson, all group members will meet to debrief the lesson, compile student assessment data, and suggest adjustments to upcoming lessons.
4. After the discussion of Day 1, the lead teacher will revise the plan for Day 2, if needed. Send revised copy of lesson to cooperating teacher and instructor.
5. After both days are taught, the lead teacher will complete a final version of the lesson plan complete with changes (what was actually taught) and the reflection section. Changes to your lesson plan (after teaching) can be made in a different color to draw attention to what was actually taught/omitted.

Due Date Schedule
1. Revised lesson plans are due to your instructor and your cooperating teacher the day before you teach by 7:30am. If you’d like more feedback from your CT, get your lesson to them earlier.
2. Please refer to schedule for due dates of final lesson plans and reflection.

Lesson plan submission instructions

E-mail lesson plans to tammy.tasker@wwu.edu
When submitting your lesson plan via email, the following must be included in the attachment file name:
1. Name
2. Lesson number
3. Edit number
4. Your file must be in .doc (Word) format

Example: studentname.lessonnumber.edit1, TammyTasker.lesson1.edit1

Files attached with file names such as “490 Lesson 1” will be returned to be renamed.
<table>
<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>Event</th>
<th>Notes</th>
<th>Due Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 6</td>
<td>W</td>
<td>Meet at WWU</td>
<td>Email CT, prepare interview questions</td>
<td>Complete Team Profile and email CT Prepare interview questions class visit Draft Initial Reflection Section 1</td>
</tr>
<tr>
<td>Jan 8</td>
<td>F</td>
<td>Meet at WWU</td>
<td>Planning Learning Progression, Big Ideas, Learning Targets</td>
<td>DUE: Initial reflection Section 1</td>
</tr>
<tr>
<td>Jan 11</td>
<td>M</td>
<td>Observation at Geneva</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jan 13</td>
<td>W</td>
<td>Meet at WWU</td>
<td>Planning Learning Progression, Big Ideas, Learning Targets</td>
<td>DUE: Initial Reflection Sections 1-4</td>
</tr>
<tr>
<td>Jan 15</td>
<td>F</td>
<td>Meet at WWU</td>
<td>Planning Learning Progression, Big Ideas, Learning Targets, Learning Progression draft due end of class Pre-assessment plan draft due end of class, including outline for how you plan to use your time on Jan 20 in the classroom (introductions, assessment, game?)</td>
<td>DUE: Lesson 1 - complete draft LP</td>
</tr>
<tr>
<td>Jan 18</td>
<td>M</td>
<td>No Class: MLK Day</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jan 20</td>
<td>W</td>
<td>Pre-assessment at Geneva</td>
<td>Have copies and materials ready</td>
<td>DUE: Lesson 1- Plan Info (LP thru Assessment Section, no scripting)</td>
</tr>
<tr>
<td>Jan 25</td>
<td>M</td>
<td>Tammy gone: Jan 22-25 Meet in teaching groups on your own to complete Learning Progression &amp; LP 1</td>
<td>CT work day at Geneva</td>
<td>DUE: Lesson 1 - complete draft LP</td>
</tr>
<tr>
<td>Jan 27</td>
<td>W</td>
<td>Lesson 1 at Geneva</td>
<td>Replaces Monday teaching time missed bc of CT workday</td>
<td>DUE: Learning Progression final DUE: Lesson 2- complete draft LP</td>
</tr>
<tr>
<td>Jan 29</td>
<td>F</td>
<td>Lesson 1 at Geneva</td>
<td></td>
<td>DUE: Lesson 1 final plan w final changes &amp; reflection (submitted by Lead Teacher)</td>
</tr>
<tr>
<td>Feb 1</td>
<td>M</td>
<td>Lesson 2 at Geneva</td>
<td></td>
<td>DUE: Lesson 3- complete draft LP</td>
</tr>
<tr>
<td>Feb 3</td>
<td>W</td>
<td>Lesson 2 at Geneva</td>
<td></td>
<td>DUE: Lesson 2 final plan w final changes &amp; reflection (submitted by Lead Teacher)</td>
</tr>
<tr>
<td>Feb 8</td>
<td>M</td>
<td>Lesson 3 at Geneva</td>
<td></td>
<td>DUE: Lesson 4- complete draft LP</td>
</tr>
<tr>
<td>Feb 10</td>
<td>W</td>
<td>Lesson 3 at Geneva</td>
<td></td>
<td>DUE: Lesson 5- complete draft LP DUE: Lesson 3 final plan w final changes &amp; reflection (submitted by Lead Teacher)</td>
</tr>
<tr>
<td>Feb 15</td>
<td>M</td>
<td>No Class: Presidents Day</td>
<td></td>
<td>DUE: Lesson 4 final plan w final changes &amp; reflection (submitted by Lead Teacher)</td>
</tr>
<tr>
<td>Feb 17</td>
<td>W</td>
<td>Lesson 4 at Geneva</td>
<td></td>
<td>DUE: Lesson 6 final plan w final changes &amp; reflection (submitted by Lead Teacher)</td>
</tr>
<tr>
<td>Feb 19</td>
<td>F</td>
<td>Lesson 4 at Geneva</td>
<td>Replaces Monday teaching time missed bc of holiday</td>
<td>DUE: Lesson 5 final plan w final changes &amp; reflection (submitted by Lead Teacher)</td>
</tr>
<tr>
<td>Feb 22</td>
<td>M</td>
<td>Lesson 5 at Geneva</td>
<td></td>
<td>DUE: Lesson 6 final plan w final changes &amp; reflection (submitted by Lead Teacher)</td>
</tr>
<tr>
<td>Feb 24</td>
<td>W</td>
<td>Lesson 5 at Geneva</td>
<td></td>
<td>DUE: Lesson 6- complete draft LP</td>
</tr>
<tr>
<td>Feb 26</td>
<td>F</td>
<td>Meet at WWU</td>
<td>Final Presentation and Post Assessment Guidelines</td>
<td>Post assessment draft due by end of class</td>
</tr>
<tr>
<td>Feb 29</td>
<td>M</td>
<td>Lesson 6 at Geneva</td>
<td></td>
<td>DUE: Lesson 5 final plan w final changes &amp; reflection (submitted by Lead Teacher)</td>
</tr>
<tr>
<td>Mar 2</td>
<td>W</td>
<td>Lesson 6 at Geneva</td>
<td></td>
<td>DUE: Lesson 6 final plan w final changes &amp; reflection (submitted by Lead Teacher)</td>
</tr>
<tr>
<td>Mar 7</td>
<td>M</td>
<td>Post Assessment at Geneva</td>
<td>Have copies and materials ready</td>
<td>DUE: Lesson 6 final plan w final changes &amp; reflection (submitted by Lead Teacher)</td>
</tr>
</tbody>
</table>
Geneva & reflection (submitted by Lead Teacher)

<table>
<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar 9</td>
<td>W</td>
<td>Meet at WWU: Work day – gather data and finalize presentations or ask questions for Evidence of Student Learning</td>
</tr>
<tr>
<td>FINALS WEEK</td>
<td>T</td>
<td>Meet at WWU: SL230 3:30-5:30 Group Presentations: Evidence of Student Learning</td>
</tr>
<tr>
<td>Mar15</td>
<td>T</td>
<td>SL230 3:30-5:30 Group Presentations: Evidence of Student Learning</td>
</tr>
</tbody>
</table>

Lesson Plan (LP) Explanations:

**Plan Info:** Lesson plan through Assessment Section (no scripting) due separately for Lesson 1 only  
**Complete Draft LP:** Finished draft including scripting, time estimations and extension emailed to me  
**Final LP:** My comments removed. Email professional version to me & CT by 7:30am the day before you teach  
**Final Changes and Reflection:** Add color key for what was taught/omitted and complete reflection section at end of template.