Science Education 480
Science Methods and Curriculum for the Elementary School
Preparing thoughtful, knowledgeable, and effective educators for a diverse society.

When: Winter 2016, TUES/THURS 10-11:50, and 5 FRI’s 10-11:50
Where: SL230
Credit Hours: 5 credits
Prerequisite: 12 credits in natural sciences, Math 112, El Ed 370 or equivalent in SPED or ECE
Instructor: Whitney Morrison
Office: LRC
Email: whitney.morrison@wwu.edu

Text: NONE
READINGS: Course materials are available through Canvas

Course Description: Study of theory, curriculum, science content, processes and effective teaching methods in the context of national standards in science including representative activities appropriate for the elementary classroom.

Requirements
Science Education 480 demands active participation and a willingness to learn and explore teaching and learning science. It is an investigation-intensive class and will require all students to be prepared each day. Excellent attendance is essential for success in this course.

1. Attendance and promptness is essential. The course is organized around many small and large group activities during class sessions. Your attendance is necessary not only for your learning but also for the learning of others. Unexcused absences will result in a lower grade.

2. Late work will be penalized in 10% increments for each day late unless you have spoken to me about an unusual situation PRIOR to the due date.

3. Written assignments must model appropriate grammar, spelling, usage and punctuation. All written work is to be word-processed (double-spaced, 12 point font). Proofread your papers as you would if you were developing a handout for students. If an assignment contains more than 3 errors per page, it will be dropped a letter grade (for example, from an A to a B). A hard copy of the assignment must be turned in at the beginning of the designated class period.

4. You must complete all of the assignments listed in the course syllabus to receive credit for this course.

5. AT LEAST TWO LESSON PLANS MUST HAVE PASSING LEARNING TARGETS, PROPER STRUCTURE AND ADEQUATE ASSESSMENT or the student may receive an incomplete or fail the course.
6. There may be occasional unannounced assignments and quizzes. If a student is absent, these points cannot be made up.

**Goals & Outcomes**
PSTs will use documents such as standards & curriculum, to organize a unit of study around a big idea
   A. Identify big idea/concept
   B. Develop a storyline/learning progression of subconcepts that will lead to big idea
   C. Help students connect the subconcepts to building the bigger idea
PSTs will define NOS, explain importance to science instruction, integrate into teaching
PSTs will describe similarities and differences between engineering and science
PSTs will describe design process in engineering
PSTs will develop assessment plan for unit and lessons incorporating pre-assessment, formative assessment and summative assessment
PSTs will design effective science lessons that:
   A. State clear learning targets (for NOS and for content) for lesson
   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
PSTs will differentiate instruction for individual learners through appropriate teaching of academic language

**Student Evaluation:**

1) **In-Class assignments (unannounced)** 0-20
2) **Folder Commentary (unannounced)** 20
3) **Reading Assignments**
   - Nature of Science 10
   - How People Learn 10
4) **Lesson Plans**
   - Lesson 1 3 drafts, 5pts ea 15
   - Lesson 1 Final 28
   - Lesson 2 28
   - Lesson 3 34
5) **Final Essay** 15

**TOTAL POINTS: 160 – 180**

**Grades:** The grading scale is as follows:

- 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%
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).

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/

On-line References:
Next Generation Science Standards
http://www.nextgenscience.org/

Benchmarks for Science Literacy (AAAS Project 2061), Oxford (1993) [Benchmarks]
http://www.project2061.org/tools/benchol/bolintro.htm

Science for All Americans (AAAS Project 2061), Oxford (1990) [SFAA]
http://www.project2061.org/tools/sfaao/sfaatoc.htm

National Science Education Standards, National Academy Press (1996) [NSES]
http://www.nap.edu/readingroom/books/nses/


National Science Teachers Association: http://www.nsta.org/
Science Notebooks http://www.sciencenotebooks.org/notebooks/entries.cfm

Hard-copy References in Learning Resource Center, SMATE


