11/7/2012 REVISION

ED 479
SCIENCE METHODS AND CURRICULUM DEVELOPMENT
OFF-CAMPUS

During the elementary internship year students are required to participate in university coursework with UAF faculty and in aligned internship year responsibilities in an elementary classroom with a qualified mentor teacher. The internship year follows the school district calendars for teachers (approximately 190 days per academic year) and during each school day, interns are required to be in their elementary classroom whenever they are not

xx (2.5+0+4)

INSTRUCTOR INFORMATION

Instructor: Cindy Fabbri
Office: 714D Gruening Building
Office Hours: Following the audioconference or by appointment
Telephone: (907) 4741558
Fax: (907) 4745451
Email: cfabbri@alaska.edu

MATERIALS

Carin, Arthur A., et al. 2005. *Teaching Science as Inquiry, Eleventh Edition.* Pearson Education, Inc.: Upper Saddle River, NJ.

Campbell, Brian and Fulton, Lori. 2003. *Science Notebooks: Writing About Inquiry.* Heinemann: Portsmouth, NH

National Research Council. 2011. *A Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas*. National Academy Press: Washington, DC. [online] http://www.nap.edu/catalog.php?record_id=13165

National Research Council. 1996. *National Science Education Standards*. National Academy Press: Washington, DC. [online] http://www.nap.edu/readingroom/books/nses/

Alaska State Board of Education & Early Development. 2005. *Standards: Content & Performance Standa*

science unit. Classroom internship required. Prerequisites: Admission to internship year, concurrent enrollment in other internship year courses; Alaska passing scores for the Praxis I exams. Stacked with ED F688. (2.5+0+1.5)

COURSE GOALS

"Effective science teaching is more than knowing science content and some teaching

Interpretwhat they have found;
Apply what they have learned;
Reflect on the experience;
Share the new knowledge and understandings;
Refine the ideas; and
Work independently and collaboratively.

To facilitate individual and group learning opportunities, courseworkwill include, at least:
Handson investigations;
Designing, implementing and reflecting on a science unit;
Critical reviews of literature;
Case Studies;
Reflections and critiques of work done by oneself and peers; and
Group collaboration and discussion.

ASSIGNMENTS

ED 479: 1000 points possible

Audio-conference/Blackboard Attendance, Preparedness and Participation
Total Points Possible = 140 (20 points per class x 7 classes)

Student attendance at the audio-conference and on Blackboard is expected. With only seven classes it is essential that you make each and every class. Being prepared and participating in the audio-conferenCID 57(tic)6(ir69 t)o BT /Tj EMC /P3(e)-6(e86(p()-6c-7n/)-(nCI

Teach an inquiry-based lesson to an individual child or a small group of children. You

- What are unifying themes in science education?
- What are big ideas in science?
- What do national and state research/standards tell us?

NSTA Standard 9: What do I need to know about safety?

Homework:

1) Read text Chapter 5, Planning and Managing Inquiry, pages 112-115
2) Complete *Unit Planning Worksheet 1: Choose a Topic & Brainstorm Learning Goals*
   Be prepared to present the items in red at our next class. Please **post your answers in the Blackboard discussion forum**, so the group can see your work. Please type directly in the forum box (rather than posting an attachment) so the group can view your work without having to download it.
3) *What is Inquiry Assignment* (See directions on Blackboard)
4) *Processes and Strategies for Inquiring, Teaching Science for Understanding Assessing Science Learning*
5) readings TBA
6) Find a lesson in the back of your textbook and start making plans to teach it to an individual child or small group of children the week of September 12-16.
7) (Optional) Bring a resource to class (post resource in Blackboard Discussion Forum)

Friday, September 9th 9:00-12:00

Due today:

Unit Planning Worksheet 1: Choose a Topic & Brainstorm Learning Goals

Audio-conference:

- NSTA Standard 5: How do I teach science? (General Methods)
- What is inquiry?
- How do Ia1(i)-10(of)0(r)3ood qeJ /TT6 1 T i oTw [(Th(m)-2(a321 66 >>BDC1)-4(2)]TC -27.
  - o

2) *Unit Planning Worksheet 3: Relevancy & Differentiation*
3) Begin making plans to teach Take Home Lesson #2 during the week of **Oct 24-28**
4) *Chapter 10, Science for All Learners,*
readings TBA
6) (Optional) Bring a resource to class (post resource in Blackboard Discussion Forum)

Friday, October 21 9:00-12:00

Due today:
Unit Planning Worksheet 3: Relevancy & Differentiation
Draft Science Unit

Audio-conference:
NSTA Standard 7:
- What is "relevant & responsive" curriculum/instruction?
- How do you build a community of learners?
- What is culturally relevant science education?
- What is authentic learning?
- How do I facilitate community-based, place-based learning?

Homework:
1) Teach Take Home Lesson #2 during the week of **Oct 24-**
Respond to two colleagues during the week of **Oct 29-Nov 4**
2) Refine unit and turn in a **FINAL VERSION asap. (The final unit does not include the reflections). You should submit your final version as soon as possible after receiving feedback on the draft, so if you need to make more revisions you have time to do so. Please note, unlike math, the final version is due <u>before</u> you teach.**
3) Read text Chapter 8 Technology Tools and Resources for Inquiry Science
4) Read posted on teaching evolution
5) Other readings TBA
6) (Optional) Bring a resource to class (post resource Blackboard Discussion Forum)

Friday, November 4th N4 [2:J 930

Homework:
1) Refine unit and turn in a **FINAL VERSION asap. (The final unit does not include the reflections). You should submit your final version as soon as possible after receiving feedback on the draft, so if you need to make more revisions you have time to do so. Please note, unlike math, the final version is due before you teach.**
(All competencies must be met before you teach)
2) ED 688 Student's Independent Projects Due on December 3rd
3) Final reflections due on December 3rd
4) (Optional) Bring a resource to class (post resource on Blackboard Discussion Forum)

November 21st – December 2nd

NSTA Standard 6:
TEACH Science Unit (5 days total)

Homework:
1) **Final reflections** (i.e. while you are teaching you should be writing daily reflections, collecting samples of student work, taking photos, etc.) are **due December 9th.**
2) **ED 688** Students Independent **Projects Due on December 9th.**
3) (Optional) Bring a resource to class (post resource on Blackboard Discussion Forum)

Friday, December 9th 9:00-12:00

Due today:
Final reflections
ED 688 Student's Independent Projects Due

Audio-conference:
- How do I feel about teaching and learning science?
    - Share your final reflections on teaching your science unit
- What is my understanding of science and science education now?
    - Share your course summative assessment
- NSTA Standard 10: What professional development opportunities exist?

POLICIES

As a compressed course, a great deal of information is covered each session. For this reason, attendance at all classes is expected. If you need to miss class, please contact me immediately.

Assignments are expected on the stated due date or prior to the due date. If you are unable to turn in an assignment on time, you will need to document an emergency or extenuating