CALIFORNIA STATE UNIVERSITY, SACRAMENTO
College of Education, Department of Teacher Education

EDTE 316, Elementary Science Methods for the Diverse Classroom
Spring 2008

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COURSE DESCRIPTION

This course is designed for teacher candidates pursuing a Multiple Subject Credential in the CSUS Department of Teacher Education. The major goal of the course is to prepare teacher education candidate to develop a professional perspective on teaching science that includes an ethical commitment to teach every student effectively and to develop as a professional educator. Each candidate accepts the responsibility of a teacher to provide equitable access for all students to core academic content, to promote student academic progress equitably, and to foster the intellectual, social, and personal development of students.

EXPECTATED LEARNING OUTCOMES:

The course reflects a developmental approach to science instruction congruent with the *California Science Framework.* These include, but are not limited to:

1. Candidate understands state-adopted science academic content standards (TPE Standard 1A.11 Specific Pedagogical Skills for Multiple Subject Teaching Assignments-Science).
2. Candidate balances between information, concepts, and investigations (TPE Standard 1A.12 Specific Pedagogical Skills for Multiple Subject Teaching Assignments-Science).
3. Candidate emphasizes importance of accuracy, precision, and estimation (TPE Standard 1A.13 Specific Pedagogical Skills for Multiple Subject Teaching Assignments-Science).
4. Candidates will explain the nature of science, define its parts, and explain why it is important to teach science in the elementary classroom. (TPE Standard 1A.13 Specific Pedagogical Skills for Multiple Subject Teaching Assignments-Science).
5. Candidates will demonstrate that they understand and can apply each of the science process skills in actual elementary school science lesson plans. (TPE Standard 1A.13 Specific Pedagogical Skills for Multiple Subject Teaching Assignments-Science).
6. Candidates will demonstrate their ability to plan for science instruction by developing a unit of study that meets the needs of English Learners and Special Populations in the General Education Classroom. (TPE Standard 1A.13 Specific Pedagogical Skills for

Multiple Subject Teaching Assignments-Science); (Standard 13 Preparation to Teach English Learners); and (Standard 14 Preparation to Teach).
7. Candidates will adapt science lessons for students with special needs and diverse students including English Learners (Standard 13 ELL and 14 Preparation to Teach Special Populations in the General Education Classroom).
8. Candidates will design performance assessment s to appropriately and equitably measure achievement of all students
9. Candidates will use multimedia, online communication, web resources and other appropriate technology to enhance the learning of science for a diverse population of students.
10. Candidates will participate and develop strategies effectively as a member of a cooperative group.

SUGGESTED TEXTBOOKS & REFERENCES:

1. California Department of Education (2002). Content standards for California public schools kindergarten through grade twelve – Science. http://www.cde.ca.gov/standards/
2. Driver, R. Guesne, E. & Tiberghien, A. (1992). Children's idea in science. Open Unviersity Press. Milton Keynes: PA.
3. Liem, T.L. (1987). Invitations to science inquiry. Science Inquiry Enterprises, Chino Hills: CA.
4. Koch, J. (2004). Science stories- Teachers and children as science learners. Houghton Mifflin Company
5. National Research Council (2000). Inquiry and the national science education Standards. National Academy Press, Washington, D.C. (Library has this ebook.)
6. National Research Council (1996). National science education standards. National Academy Press, Washington, D.C.
7. Robertta B. Science in the Multicultural Classroom. Allyn & Bacon.

INSTRUCTIONAL ACTIVITIES

The method of instruction for this course will consist of but not limited to lecture, demonstration, inquiry, active discussion, cooperative group activities, sharing of reflective experiences, and reading assignments. The instructional activities incorporate theories and strategies to help candidate develop curriculum and deliver instruction for working with diverse, special needs and ELL students. In addition, technology application for the secondary science classroom will be infused throughout the course.

METHODS OF EVALUATION AND GRADING POLICY:

Your grade will be determined according to the following components:

1. Moon phase journal, 80 points.
2. Investigation of students' science concepts, 50 points.
   (interview questions – 10, summary& analysis – 30, action plan – 10)
3. Signature assignment: Unit plan, 110 pts.
   Overview of the unit: 10 pts (5 x 4 prompts)
   Assessment plan: 20 pts (diagnostic, formative, summative & rubric)
   Calendar (with brief description of each day's instructional activity): 20 pts

Lesson plans: 60 pts (4 lesson plans X 15 points/per lesson plan) **at least lesson needs to be inquiry lesson which uses 5E learning cycle*
Each lesson should include: 1. learning objective (3 pts), 2. instructional procedures (6 pts), 3. assessment (3pts), and 4. differentiated instruction (3 pts)

4. Reflection on reading, 30 points
   Write a reflection on each reading assignment. The reflection includes: (1) overall response: you could discuss how you agree or disagree with the author(s), favorite ideas, and any comments, thoughts about the reading. (2) how the ideas/concepts could be applied to my science instruction.
5. Field experience works, 30 pts.

total: 300

A	276+
A-	268 – 275
B+	255 – 267
B	240 – 254
C	210 - 239
D	180 - 209
F	< 180

POLICY STATEMENTS:

- Attendance/Participation: Regular attendance is required. It is expected that you will arrive on time, return from breaks promptly and stay the full period. It is also expected that you will arrive with required readings completed and class materials fully prepared, and that you will participate appropriately in classroom activities.
  The instructor reserves the right to lower student's grade for the absence of class. Missing more than two classes may result in a failing grade. As a courtesy, students should contact the instructor to report absence prior to class meetings. It is your responsibility to make pre-arrangements with a class buddy to gather materials, take notes, and assume responsibility for turning in class assignments.
- Each assignment is expected to turn in on time. The excused late assignment needs to be turned in within a week, but receives half of the total earning points.
- This course abides by University policy and regulations with regard to academic dishonesty. Please refer to a current University Catalog for more information.

Date	Theme	Activity	Reading/ assignment due
1. 1-30	5 E learning cycle	Introduction, the nature of science	Read #1 reading
2. 2-6	Constructivism	Dis #1 reading (reflection due) Interview children's ideas.	Read #2 reading
3. 2-13	Content standard	Dis #2 reading (reflection due) Unit plan practice: context for Learning, big ideas	Read #3 reading
4. 2-20	Inquiry	Dis #3 reading (reflection due) Experiment design	Field experience lesson plan due
5. 2-27	Field experience		
6. 3-5	Assessment	Unit plan practice: Assessment plan	Field experience lesson plan due
7. 3-12	Field experience		
8. 3-19	Unit plan overview	Unit plan practice: lesson plan template, calendar	Overview of the unit & Assessment plan due
9. 3-26	Field experience	Discussion and reflection	Interview assignment due
10. 4-2	Spring break		
11. 4-9	Multicultural science education	Accommodation strategies	Moon phase journal due Field experience lesson plan due
12. 4-16	Field experience		
13. 4-23	Teaching strategy	Cooperative learning activities	Unit calendar due Field experience lesson plan due
14. 4-30	Field experience		
15. 5-7	Lab safety	Model building	
16. 5-14	Science education resources	Unit plan presentation STAR test	Unit plan due