EDSS 542. TEACHING LIFE/PHYSICAL/GEO-SCIENCE IN SECONDARY SCHOOLS (3)
Prerequisite: Admission to the Single Subject Credential Program.
Corequisite: EDSS 580 (1-2 units): or EDSS 585
A study of the content, methodology, materials and current research in teaching high school science courses. Focuses on methods, curriculum design, and technology use specific to teaching science courses in grades 9-12. Emphasizes reflective practice based on California Standards for the Teaching Profession and the use and alignment of curricula to the Academic Content Standards for California Public Schools. Includes an emphasis on teaching in multicultural, multilingual and inclusive classrooms.

2. Mode of Instruction.

<table>
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<tr>
<th>Units</th>
<th>Hours per Unit</th>
<th>Benchmark Enrollment</th>
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<tbody>
<tr>
<td>Lecture</td>
<td>3</td>
<td>1</td>
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<tr>
<td>Seminar</td>
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<tr>
<td>Laboratory</td>
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<tr>
<td>Activity</td>
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3. Justification and Learning Objectives for the Course. (Indicate whether required or elective, and whether it meets University Writing, and/or Language requirements)

Required Course for students seeking a Single Subject Credential in Science.

Students who successfully complete this course will be able to:
1. define science as the process of inquiry, particularly the systematic search for patterns; define technology as the use of tools; and note the interactions of science, technology, and society.
2. demonstrate proficiency in performance of both the basic and integrated science process skills as ingredients of scientific inquiry.
3. analyze the learning and memory mechanisms which affect the learning of science in multicultural, multilingual, and inclusive contexts.
4. inquire into learning processes and individual learning needs to acquire techniques for promoting meaningful science learning.
5. analyze, synthesize, and evaluate current science education reform initiatives.
6. explore resources and networks which enhance the teaching and learning of science.
7. infuse technology into their science teaching.
8. design engaging lessons and assessments aligned to the California State Academic Content Standards and National Science Education Standards

4. Is this a General Education Course

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
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<tr>
<td>If Yes, indicate GE category:</td>
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<tr>
<td>A (English Language, Communication, Critical Thinking)</td>
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<tr>
<td>B (Mathematics &amp; Sciences)</td>
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<tr>
<td>C (Fine Arts, Literature, Languages &amp; Cultures)</td>
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5. **Course Content in Outline Form.** [Be as brief as possible, but use as much space as necessary]

1.0 Students will define science as the process of inquiry, particularly the systematic search for patterns; define technology as the use of tools; and note the interactions of science, technology, and society.
   1.1 Analysis of examples and definitions
   1.2 Science, technology, and society linkages

2.0 Students will demonstrate proficiency in performance of both the basic and integrated science process skills as ingredients of scientific inquiry.
   2.1 Observing, inferring, classifying, measuring, communicating, and predicting
   2.2 Hypothesizing, collecting and analyzing data, experimenting
   2.3 Critiquing of investigations

3.0 Students will analyze the learning and memory mechanisms which affect the learning of science in multicultural and multilingual contexts.
   3.1 Research on learning and memory models
   3.2 Blocks to learning science
   3.3 Impact of pre-instructional knowledge
   3.4 Developmental and cultural concerns
   3.5 Consideration of unifying and major conceptual themes in science

4.0 Students will inquire into learning processes and individual learning needs to acquire techniques for promoting meaningful science learning.
   4.1 Research and practice based teaching strategies
   4.2 Questioning techniques
   4.3 Investigations
   4.4 Cooperative learning
   4.5 Authentic assessment
   4.6 Safety considerations

5.0 Students will analyze, synthesize, and evaluate current science education reform initiatives.
   5.1 International and national perspectives
   5.2 State and local perspectives

6.0 Students will explore resources and networks which enhance the teaching and learning of science.
   6.1 People resources
   6.2 Material and media resources
   6.3 Informal and formal learning settings
   6.4 Professional journals and conferences

7.0 Students will infuse technology into their science teaching

8.0 Students will design engaging lessons and assessments aligned to the California State Academic Content Standards and National Science Education Standards

6. **References.** [Provide 3 - 5 references on which this course is based and/or support it.]

7. **List Faculty Qualified to Teach This Course.**
Secondary Science Education Faculty

8. **Frequency.**
   a. Projected semesters to be offered: Fall ___X___ Spring ___X___ Summer ___X___

9. **New Resources Required.**
Library Resources
Laboratory Resources
10. Consultation.
   Attach consultation sheet from all program areas, Library, and others (if necessary)

11. If this new course will alter any degree, credential, certificate, or minor in your program, attach a program modification. N/A

Dr Jeanne Grier in consultation with Dr. Bob Bleicher  9 January, 2003
Proposers of Course               Date: