Course Change Proposal
Form A

<table>
<thead>
<tr>
<th>Academic Group (College):</th>
<th>Academic Organization (Department): GEOLOGY</th>
<th>Date: Oct 27, 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSM</td>
<td>Department Chair: DAVE EVANS</td>
<td>Submitted by: Dave Evans</td>
</tr>
<tr>
<td>Type of Course Proposal:</td>
<td>New ____ Change <em>XX</em> Deletion ___</td>
<td>Semester Effective:</td>
</tr>
<tr>
<td></td>
<td>Does this course fulfill a requirement for</td>
<td>Fall <em>XX</em> Spring __, 2010</td>
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<tr>
<td></td>
<td>single-subject or multiple subject credential</td>
<td></td>
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<tr>
<td></td>
<td>students? Yes ___ No <em>X</em></td>
<td></td>
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<td></td>
<td>For Catalog Copy: Yes <em>XX</em> No ___</td>
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<td>CCE: Yes ___ No ___</td>
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This course replaces experimental course Subject Area (prefix) and Catalog Number (course number): n/a
This Catalog Number (course number) is being replaced: GEOL 123

Change from:

<table>
<thead>
<tr>
<th>Subject Area (prefix) &amp; Catalog No. (course no.):</th>
<th>Title:</th>
<th>Units:</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 123</td>
<td>Geochemistry</td>
<td>4</td>
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</table>

Change to:

<table>
<thead>
<tr>
<th>Subject Area (prefix) &amp; Catalog No. (course no.):</th>
<th>Title:</th>
<th>Units:</th>
</tr>
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<tbody>
<tr>
<td>GEOL 123</td>
<td>Geochemistry</td>
<td>3</td>
</tr>
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JUSTIFICATION:

The laboratory component of GEOL 123 is being eliminated. The units will change accordingly. This course change is being made in conjunction with a substantial program change for the B.S. degree in Geology.

NEW COURSE DESCRIPTION: (Not to exceed 80 words, and language should conform to catalog copy. See http://www.csus.edu/acaf/univmanual/crpsgl.htm - Guidelines for Catalog Course Description)

Fundamentals of the geochemistry of Earth materials. Thermodynamics and kinetics of geological environments, silicates and carbonates, major element geochemistry, trace and rare earth element geochemistry, stable and radiogenic isotopes. Applications to studies of aqueous, pedogenic, igneous, sedimentary, and metamorphic environments. Analysis of geochemical aspects of contemporary resource, environmental, and paleoenvironmental problems.

Note:

Prerequisite: GEOL 5 or GEOL 10 and GEOL 10L, CHEM 1A

Corequisite:

CAN (California Articulation Number):

Graded: Letter _X_ Credit/No Credit__

Instructor Approval Required? Yes ___ No _X_

Course Classification (e.g., lecture, lab, seminar, discussion):
Lecture

Title for SIS+/CMS (not more than 30 characters)

Geochemistry

Cross Listed? Yes ___ No _X_

If yes, do they meet together and fulfill the same requirement, and what is the other course.

How Many Times Can This Course be Taken for Credit? _1__

Can the course be taken for Credit more than once during the same term? Yes ___ No _X_
FOR NEW COURSE PROPOSALS OR SUBSTANTIVE CHANGES ONLY:

Description of the Expected Learning Outcomes: Describe outcomes using the following format: “Students will be able to: 1), 2), etc.” See the example at http://www.csus.edu/acaf/example.htm

Students who are successful in this course will be able to:
1) Identify geochemical constituents in major igneous, metamorphic, sedimentary, and surficial environments.
2) Identify geological processes controlling geochemical signatures in major igneous, metamorphic, sedimentary, and surficial environments.
3) Interpret variability and identify trends and relationships among geochemical data from geological environments.
4) Identify the timescales of geochemical processes, and relevance to human society.

**Attach a list of the required/recommended course readings and activities [Note: it is understood that these are updated and modified as needed by the instructor(s).] This attachment should be forwarded only to your Dean’s office, not Academic Affairs.

Assessment Strategies: A description of the assessment strategies (e.g., portfolios, examinations, performances, pre-and post-tests, conferences with students, student papers) which will be used by the instructor to determine the extent to which students have achieved the learning outcomes noted above:

Student assessment will be based on (1) Homework problem sets and (2) Exams.

For whom is this course being developed?
- Majors in the Dept X
- Majors of other Depts
- Minors in the Dept
- General Education
- Other

Is this course required in a degree program (major, minor, graduate degree, certificate)? Yes X No

Note: this course will be one of several elective courses offered on a rotating basis. Students will be required to take four such electives.

If yes, identify program(s): This course will be one of several elective courses that will be offered on a 2-year rotation. Students will be required to take 4 of the elective courses.

Does the proposed change or addition cause a significant increase in the use of College or University resources (lab room, computer facilities, faculty, etc.)? Yes X No

If yes, attach a description of resources needed and verify that resources are available.

Indicate which department or programs will be affected by the proposed course (if any).

The Department Chair’s signature below indicates that affected programs have been sent a copy of this proposal form.

Approvals: If proposed change, new course or deletion is approved, sign and date below. If not approved, forward without signing to the next reviewing authority, and attach an explanatory memorandum to the original copy.

Signatures:
- Department Chair:
- College Dean or Associate Dean:
- CPSP (for school personnel courses ONLY)
- Associate Vice President
- and Dean for Academic Programs

Date: 4/20/10

Distribution: Academic Affairs (original), Department Chair and College Dean. Dean’s office to send original after approval to Academic Affairs, at mail zip 6016. An electronic copy must also be sent.