## Course Change Proposal

**Form A**

<table>
<thead>
<tr>
<th>Academic Group (College):</th>
<th>NSM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Organization (Department):</td>
<td>Biological Sciences</td>
</tr>
<tr>
<td>Date:</td>
<td>October 12, 2010</td>
</tr>
<tr>
<td>Type of Course Proposal:</td>
<td>New X Change Deletion</td>
</tr>
<tr>
<td>Department Chair:</td>
<td>Rose Leigh Vines</td>
</tr>
<tr>
<td>Submitted by:</td>
<td>Shannon Datwyler</td>
</tr>
<tr>
<td>Does this course fulfill a requirement for single-subject or multiple subject credential students?</td>
<td>Yes No</td>
</tr>
<tr>
<td>For Catalog Copy:</td>
<td>Yes X No</td>
</tr>
<tr>
<td>CCE (Extension):</td>
<td>Yes No</td>
</tr>
<tr>
<td>Semester Effective:</td>
<td>Fall X Spring 20_12</td>
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### This course replaces experimental course Subject Area (prefix) and Catalog Nbr (course number):

If changing an existing course, should new version be considered a repeat of the original version? If so, the same Course ID will be maintained. If not, a new Course ID will be assigned. Note: In PeopleSoft terminology, the Course ID is the unique system identifier, not the Catalog Nbr.

<table>
<thead>
<tr>
<th>Change from:</th>
<th>Subject Area (prefix) &amp; Catalog Nbr (course no.):</th>
<th>Title:</th>
<th>Units:</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 178</td>
<td>Molecular Ecology</td>
<td>3.0</td>
<td></td>
</tr>
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</table>

### Change to:

<table>
<thead>
<tr>
<th>Subject Area (prefix) &amp; Catalog Nbr (course no.):</th>
<th>Title:</th>
<th>Units:</th>
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### JUSTIFICATION:

The Department of Biological Sciences is in the process of restructuring the undergraduate curriculum, including revising the current concentration in Biological Conservation into a more modern Ecology, Evolution and Conservation concentration. As part of this revision, we are developing a required course in Molecular Ecology as this is a growing subdiscipline within ecology and evolution. Providing students with a strong background in the application of molecular tools in ecological disciplines is becoming increasingly important not just for jobs within state agencies, but also for students interested in pursuing graduate education. Furthermore, very few biology programs offer, much less require, a course of this nature. This has the potential to make students trained at Sacramento State particularly competitive in the current job market.

### NEW COURSE DESCRIPTION:

(Not to exceed 80 words, and language should conform to catalog copy. See http://www.csus.edu/umanual/acad.htm - Guidelines for Catalog Course Description)

A survey of the use of molecular tools to understand ecological questions. Lecture will focus on the background and history of the use of molecular tools in ecological settings, including application of molecular tools to conservation of natural resources. Laboratory will include techniques for both wet lab and analysis of molecular data, including interpretation of results. Students will complete a capstone-style project that will culminate in the production of a research proposal. **Prerequisites:** BIO 184; BIO 188 recommended. Lecture two hours, Laboratory three hours. Units: 3.0.

### Note:

- **Prerequisite:** BIO 184
- **Enforced at Registration:** Yes X No
- **Corequisite:**
- **Enforced at Registration:** Yes No
- **Graded:** Letter X Credit/No Credit
- **Instructor Approval Required?** Yes No X
- **Course Classification (e.g., lecture, lab, seminar, discussion):** C2, C16
- **Title for CMS (not more than 30 characters):** Molecular Ecology
- **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?** One
- **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 will be able to:
- Identify similarities and differences in genome structure between plants, animals, and bacteria
- Identify the types of techniques used in the field of molecular ecology
- Discriminate between the value of molecular techniques in studying various ecological processes
- Apply techniques and analyses in an appropriate way to study ecological questions
- Perform laboratory techniques including DNA isolation from various types of source materials, polymerase chain reaction, and agarose gel electrophoresis
- Perform appropriate statistical analyses in molecular ecology
- Effectively read and discuss scientific literature in the field of molecular ecology
- Integrate theoretical and laboratory techniques into an effective research proposal

**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:

Three lecture exams
Research proposal
Class participation

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  ___

If yes, identify program(s): B.S. in Biological Sciences, concentration in Ecology, Evolution and Conservation

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  ___  No  X  ___

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: _____________________________ Date: 10/12/10

Department Chair: Rose March Vine

College Dean or Associate Dean: 11/14/10

CPSP (for school personnel courses ONLY)

Associate Vice President

and Dean for Academic Programs

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.

9/10/2008