



SACRAMENTO
STATE

Program Proposal Form B



Academic Group (College): Natural Sciences and Mathematics	Date of Submission to College Dean: November 16, 2007
Academic Organization (Department): Biological Sciences	Requested Effective: Fall <u>X</u> , Spring __, 20 <u>08</u> .
Department Chair: Nicholas Ewing	Contact if not Department Chair: Ruth Ballard
Title of the Program: Master of Science in Biological Sciences	

Type of Program Proposal:

Modification in Existing Program:
 Substantive Change
 Non-Substantive Change
 Deletion of Existing Program

New Programs
 Initiation (Projection) of New Program on to Master Plan
 New Degree Programs
 Regular Process
 Fast Track Process
 Pilot Process
 New Minor, Concentration, Option, Specialization, Emphasis
 New Certificate Program

PLEASE NOTE: Form B is to be used only as a Cover Form. Additional information is requested for each of the above as noted in the corresponding procedure in the Policies and Procedures for Initiation, Modification, Review and Approval of Courses and Academic Programs found at <http://www.csus.edu/acaf/univmanual/index.htm>

Briefly describe the program proposal (new or change) and provide a justification.

We previously submitted course changes that affect the M.S. in Biological Sciences Graduate Program. The proposed changes here integrate those changes into the Program without changing the total units in the program. The previously approved course changes were to split the 3 unit course Bio 220 (Research Methods) to yield a 2 unit Bio 220 and Bio 221A (Cell and Molecular Methods and Techniques; 2 units) and Bio 221B (Methods in Ecology, Evolution and Conservation; 2 units). In order to incorporate these into the Graduate Program we have reduced the units specified for Bio 220 in the required core. Bio 221A was added as a requirement for the Concentration in Cell and Molecular Biology. Bio 221B was added as a requirement for the Biological Conservation Concentration. Bio 221A or Bio 221B were added as a requirement for the No Concentration option. In addition, two units of Bio 299 were added as a requirement in the core since all students completing an MS must complete research projects and the Department requires students engaged in research to enroll in Bio 299. The incorporation of Bio 220, 221A, 221B and 299 causes changes in units required elsewhere in the program and these adjustments (such as a reduction in the number of elective units required) have been made throughout. Finally, we have removed the lists of approved electives to ensure that students understand that electives must be selected in consultation with the thesis advisor and must be approved at Advancement.

Approvals:

Department Chair:

W. D. C.

Date:

12/5/7

College Dean:

Laurel Heppner

Date:

12/10/07

University Committee:

Date:

**Associate Vice President and Dean
for Academic Affairs:**

Date:

8/27/07

Proposed Changes:

1. **BIO 220** course change previously approved results in decrease for that course from 3 to 2 units.
2. Previously approved new course, **BIO 221A**, 2 units; added as reqt for Cell and Molec Concentration
3. Previously approved new course , **BIO 221B**, 2 units; added as reqt for Biological Conservation Concentration
4. **BIO 299** (2 units) added to core requirement
5. **BIO 221A OR 221B** added as reqt for No Concentration

OLD PROGRAM	NEW PROGRAM
<p>GRADUATE PROGRAM</p> <p>REQUIREMENTS - MASTER OF SCIENCE DEGREE</p> <p>A. Required Core Courses (4 units)</p> <p>(3) BIO 220 Research Methods in Biological Sciences (1) BIO 294 Seminar ++++++</p> <p>B. Culminating Requirement (2 units)</p> <p>(2) BIO 500 Master's Thesis</p> <p>Additional Requirements for Concentrations</p> <p>Units required: 24</p> <p>No Concentration (24 units)</p> <p>+++++</p> <p>+++++</p> <p>+++++</p> <p>(3) BIO 282 Evolution (3) BIO 292 Biological Concepts (18) Approved electives in Biological Sciences or supporting fields (see below)</p> <p>Biological Conservation (24 unit minimum)</p> <p>+++++</p> <p>(3) BIO 282 Evolution (3) BIO 292 Biological Concepts</p> <p>(3) Select one of the following:</p>	<p>GRADUATE PROGRAM</p> <p>REQUIREMENTS - MASTER OF SCIENCE DEGREE</p> <p>A. Required Core Courses (5 units)</p> <p>(2) BIO 220 Research Methods in Biological Sciences (1) BIO 294 Seminar (2) BIO 299 Problems in Biological Sciences</p> <p>B. Culminating Requirement (2 units)</p> <p>(2) BIO 500 Master's Thesis</p> <p>Additional Requirements for Concentrations</p> <p>Units required: 23</p> <p>No Concentration (23 units)</p> <p>(2) BIO 221A Cell & Molecular Methods and Techniques OR (2) BIO 221B Methods in Ecology, Evolution and Conservation (3) BIO 282 Evolution (3) BIO 292 Biological Concepts (15) Approved electives in Biological Sciences or supporting fields. Electives must be selected in consultation with the thesis advisor and approved at the Advancement to Candidacy meeting. Up to six units of upper division (100-level) coursework taken as a graduate student in the program may be applied to the MS degree.</p> <p>Biological Conservation (23 unit minimum)</p> <p>(2) BIO 221B Methods in Ecology, Evolution and Conservation (3) BIO 282 Evolution (3) BIO 292 Biological Concepts</p> <p>(3) Select one of the following:</p>

<p>BIO 214 Advanced Plant Ecology (BIO 160) BIO 260 Population and Community Ecology (BIO 160) BIO 269 Behavioral Ecology (BIO 160 or instructor permission)</p>	<p>BIO 214 Advanced Plant Ecology (BIO 160) BIO 260 Population and Community Ecology (BIO 160) BIO 269 Behavioral Ecology Ecology (BIO 160 or instructor permission)</p>
<p>(5-6) Select two of the following:</p> <p>BIO 270 Conservation Policy and Administration (BIO 118, BIO 173, or BIO 179) BIO 273 Advanced Fishery Biology and Management (BIO 173 or instructor permission) BIO 279 Conservation Biology and Wildlife Management (BIO 160, BIO 179; or instructor permission)</p> <p>(9-10) Approved electives in Biological Sciences or supporting fields (see below)</p>	<p>(5-6) Select two of the following:</p> <p>BIO 270 Conservation Policy and Administration (BIO 118, BIO 173, or BIO 179) BIO 273 Advanced Fishery Biology and Management (BIO 173 or instructor permission) BIO 279 Conservation Biology and Wildlife Management (BIO 160, BIO 179; or instructor permission)</p> <p>(5-6) Approved electives in Biological Sciences or supporting fields. Electives must be selected in consultation with the thesis advisor and approved at the Advancement to Candidacy meeting. Up to six units of upper division (100-level) coursework taken as a graduate student in the program may be applied to the MS degree.</p>
<p>Molecular and Cellular Biology (24 unit minimum)</p>	<p>Molecular and Cellular Biology (23 unit minimum)</p>
<p>+++++</p> <p>(3) BIO 222 Molecular Biology (BIO 184, CHEM 161) (3) BIO 224 Genomics, Proteomics and Bioinformatics (BIO 184, BIO 222 and graduate status or instructor permission)</p>	<p>(2) BIO 221A Cell & Molecular Methods and Techniques (3) BIO 222 Molecular Biology (BIO 184, CHEM 161) (3) BIO 224 Genomics, Proteomics and Bioinformatics (BIO 184, BIO 222 and graduate status or instructor permission)</p>
<p>(5-6) Select at least two of the following:</p> <p>BIO 223 Human Molecular Genetics (BIO 139, BIO 184, CHEM 161) BIO 245 Host Pathogen Interactions (BIO 121, BIO 139, BIO 184) BIO 247 Contemporary Topics in Immunology (BIO 149A or instructor permission)</p>	<p>(5-6) Select at least two of the following:</p> <p>BIO 223 Human Molecular Genetics (BIO 139, BIO 184, CHEM 161) BIO 245 Host Pathogen Interactions (BIO 121, BIO 139, BIO 184) BIO 247 Contemporary Topics in Immunology (BIO 149A or instructor permission)</p>
<p>(12-13) Approved electives from the following list or as approved by advisor</p>	<p>(9-10) Approved electives in Biological Sciences or supporting fields. Electives must be selected in consultation with the thesis advisor and approved at the Advancement to Candidacy meeting. Up to six units of upper division (100-level) coursework taken as a graduate student in the program may be applied to the MS degree.</p>
<p>BIO 104 Physiology of Human Reproduction (BIO 001, BIO 002, BIO 010, BIO 020) BIO 127 Vertebrate Embryology (BIO 011, or both BIO 001 and BIO 002) BIO 132 Neurophysiology (BIO 131, or both BIO 025 and BIO 026) BIO 143 General Virology (BIO 139, CHEM 161)</p>	<p>+++++</p> <p>+++++</p> <p>+++++</p> <p>+++++</p>

BIO 144 Pathogenic Bacteriology (BIO 139)	+++++
BIO 149A Immunology Lecture (BIO 139, CHEM 161)	+++++
BIO 155 Immunobiology (BIO 149A)	+++++
BIO 181 Molecular Biology Laboratory (BIO 139, BIO 184)	+++++
BIO 185 Topics in Biology (BIO 010, BIO 011 and BIO 012 or both BIO 001 and BIO 002; CHEM 020)	+++++
BIO 186A Cell and Molecular Biology Seminar (BIO 010, BIO 011 and BIO 012 or both BIO 001 and BIO 002)	+++++
BIO 282 Evolution	+++++
BIO 292 Biological Concepts	+++++
BIO 293 Research Conference (Graduate status and instructor permission)	+++++
BIO 297A / B Teaching Biology Seminar/Laboratory Teaching	+++++
BIO 299 Problems in Biological Sciences	+++++
CHEM 162 General Biochemistry Laboratory (CHEM 031; CHEM 160A or CHEM 161 either may be taken concurrently; ENGL 020 or an equivalent second semester composition course)	+++++
CHEM 164 Macromolecular Laboratory Techniques (CHEM 162 or equivalent; ENGL 020 or an equivalent second semester composition course)	+++++
CHEM 245 Computational Chemistry (One semester of physical chemistry or instructor permission)	+++++
CHEM 260 Protein Biochemistry (One semester of biochemistry)	+++++