

Senate Bill 1112-19

UNIVERSITY SENATE
UNIVERSITY AT ALBANY
STATE UNIVERSITY OF NEW YORK

Introduced by: Undergraduate Academic Council

Date: April 2, 2012

REVISIONS TO BIOLOGY BS PROGRAM

IT IS HEREBY PROPOSED THAT THE FOLLOWING BE ADOPTED:

1. That this takes effect for the Fall 2012semester.
2. That this proposal be forwarded to President George M. Philip for approval.

University at Albany – State University of New York

College of Arts and Sciences

Course and Program Action Form

Proposal No. 11-078

Please check one: Course Proposal Program Proposal

Please mark all that apply:

<input type="checkbox"/> New Course	Revision of:	<input type="checkbox"/> Number	<input type="checkbox"/> Description
<input type="checkbox"/> Cross-Listing		<input type="checkbox"/> Title	<input type="checkbox"/> Prerequisites
<input type="checkbox"/> Shared-Resources Course		<input type="checkbox"/> Credits	
<input type="checkbox"/> Deactivate/Activate Course (boldface & underline as appropriate)		<input checked="" type="checkbox"/> Other (specify):	Proposed Changes to Biology Bachelor of Science Program

Department: **BIOLOGICAL SCIENCES** Effective Semester, Year: **FALL 2012**

Course Number Current: _____ New: _____ Credits: _____

Course Title: _____

Course Description to appear in Bulletin: _____

Prerequisites statement to be appended to description in Bulletin:

If S/U is to be designated as the only grading system in the course, check here:

This course is (will be) cross listed with (i.e., CAS ###): _____

This course is (will be) a shared-resources course with (i.e., CAS ###): _____

Explanation of proposal:

After a thorough review of our BS major, the Department of Biological Sciences recommends some significant changes to the core curriculum. The rate of growth of knowledge in the biological sciences is arguably the fastest of any academic discipline. In addition, the BS major in Biological Sciences at the University at Albany is in a period of rapid growth in enrollment. These factors mandate periodic review, and we have concluded that the changes delineated below would improve the quality of instruction, better prepare our students for future careers in the biological sciences, and allow us to accommodate increased enrollment. The changes indicated on the following pages are proposed.

Other departments or schools which offer similar or related courses and which have certified that this proposal does not overlap their offering:

Richard Zitomer

10/14/11

Approved by Chair(s) of Departments having cross-listed course(s) [Copy of e-mail approval on following page.]	Date	Dean of College	Date
		Gregory Stevens/Edelgard Wulfert	10/26/11
Pinka Chatterji	10/21/11		

Page 2 Appended to Proposal by Richard Zitomer 10/31/11

Projected Reduction in Resources through the Revised Curriculum

Impact of changes proposed for the Introductory Biology Lab courses

The numbers of Biology majors and associated majors that take the ABIO122 and 123Z labs is projected to increase sharply over the next five years. There are currently 750 students in ABIO122 (Fall 11). If undergraduate enrollment increases by 300 students per year over the next five years, we anticipate 300 new students at the end of five years. This projection is based upon the ASCUS figures that 20% of new students take ABIO122. This would bring the total students in Fall 2016 to 1,050. In addition, the number of Biology majors has been increasing over the past few years, up by 100 students in the last four years. We cannot accurately predict whether this will continue, but it could result in another 120 students in five years, giving us 1,180 students in ABIO122.

To handle this many students, we would require 30 TAs, eight above are our current entire allotment, or, more realistically, a large number of part time lines. We would require \$80,000 - 100,000 to furnish a fourth lab room. ((With the current 750 students, we are 40 students away from having to set up a 4th lab room.) Finally, we would require a full time assistant to aid in the preparation of labs.

In short, the major change in the curriculum proposed here does not require new resources, but saves resources. Ultimately, these resources will need to be used in upper division labs which are currently strained by the increase in enrollment.

Impact of the other proposed changes

The other changes proposed are resource neutral. Making Cell Biology a required course means that it will be taught both semesters. This we will do with existing faculty.

The change in the math requirement will not cause any problems in the Math Department according to the letter submitted with the proposal.

Proposed Changes: Biology Bachelor of Science Program

After a thorough review of our BS major, the Department of Biological Sciences recommends some significant changes to the core curriculum. The rate of growth of knowledge in the biological sciences is arguably the fastest of any academic discipline. In addition, the BS major in Biological Sciences at the University at Albany is in a period of rapid growth in enrollment. These factors mandate periodic review, and we have concluded that the changes delineated below would improve the quality of instruction, better prepare our students for future careers in the biological sciences, and allow us to accommodate increased enrollment. The following changes are proposed:

1. The current mathematics requirement will be changed to either AMat108 and 111, OR AMat 108 and 112, OR AMat111 and 113, OR AMat112 and 113 (7-8 credits)
2. The current ABio122 and ABio123Z courses (the General Biology Labs) will be renumbered to ABio201 and ABio202Z, respectively, and shifted to the second year through instituting the following PREREQUISITES.
 - a. Passing grades must be obtained in AChm120, AChm121, AChm124, and AChm125.
3. Upper level laboratories will require completion of ABio201 and ABio202Z courses as PREREQUISITES.
4. ABio217 (Cell Biology) will become a required course.
5. The requirement for at least one course in each of three areas (Molecular-Cell Biology, Development-Function, Ecology-Behavior-Diversity) will be eliminated.

The math course change is designed to give our majors a more rigorous background in advanced algebra and ensure at least some introduction to calculus. This will better prepare them for upper level biology and chemistry courses.

Moving the General Biology Laboratory courses from the freshman to sophomore year will permit a more sophisticated laboratory experience for our students. They will have completed a year of biology and chemistry plus chemistry labs and most will be taking Genetics and Cell Biology. Their greater understanding of the basic underlying principles of biology will free the laboratory exercises from the restricted content characteristic of the General Biology Lab courses and allow us to design labs that introduce the scientific methodology drawing from a wider range of biological concepts. In addition, the lab exercises will better reflect the techniques and questions addressed in research labs, preparing the students for the upper level lab courses and independent research. Finally, the move will provide a continuous laboratory experience for students in their sophomore through senior years. Currently, most sophomores do not take a biology lab course in their second year; the upper level lab courses have prerequisites sophomores rarely meet, and these courses fill very quickly during registration leaving late-registering sophomores no opportunities. The renumbered General Biology II lab, ABio 202Z, fulfills the same general education WI requirement as ABio 123Z.

Requiring Cell Biology and dropping the complicated menu of course selection will simplify the major requirements and recognize this essential discipline. The cell is the basic unit of life, and it is difficult to imagine an educated biologist who is not well schooled in cell biology. While almost every course in biology presents some aspect of this discipline, we feel every student should have a coherent, integrated, intensive course in this field. With the addition of Cell Biology to the requirements for the two General Biology courses plus Genetics, Biochemistry, and Evolution, we believe that students will have sufficient breadth to their biological education that the selection of one course from each of four categories is unnecessary and restricts students from fully pursuing concentrations in in specific fields of interest.

Proposed Course Sequence

With the changes we propose, the following Suggested Bio/BS course sequence would be:

Fall Semester 1

ABio120
AChm120 + 124
AMat108, 111, or 112

Spring Semester 1

ABio121
AChm121 + 125
AMat108, 111, 112, or 113

Fall Semester 2

ABio212Y
ABio201
AChm220 + 222

Spring Semester 2

ABio217
ABio202Z
AChm221 + 223

Fall Semester 3

ABio365
Bio elective
APhy105 + 106

Spring Semester 3

ABio402
Bio lab course
APhy108 + 109

Fall Semester 4

Bio elective
Bio lab course

Spring Semester 4

Bio elective
Bio lab course

It varies from the current sequence in that ABio201 and 202Z are taken in the second year rather than ABio122 and 123Z taken in the first year. ABio217, Cell Biology, is required and will be taken by all students.

The schedule is quite flexible; the required courses ABio212Y, 217, 365, and 402 are (or in the case of ABio217 will be) offered both Fall and Spring semesters (and ABio212Y in the summer). This would allow us to limit enrollment in ABio212Y if necessary because the overflow can take ABio217 in the Fall, then ABio212Y in the Spring without falling behind schedule. Also, offering these courses both semesters will allow students to take either one or both their junior year if they fall behind schedule and still complete ABio365 (which has ABio212Y as a prerequisite) in their junior year.

Detailed Rationale

1. Changing the Mathematics course requirements

The math course change is designed to give our majors a more rigorous background in advanced algebra and ensure at least some introduction to calculus. This will better prepare them for upper level biology and chemistry courses. It would eliminate Mat 106, which is designed for business majors, and replace it with Mat 111, which requires Mat 101 as a prerequisite. The Mat101-Mat 111 sequence has a greater emphasis on developing algebraic skills, and this would ensure that students with a weak foundation in algebra would be better prepared for courses in biology and chemistry.

2. Changing the Bio labs to the second year.

The Introductory Laboratory courses from the freshman to sophomore year will permit a more sophisticated laboratory experience for our students while eliminating the gap in lab courses between the freshman and junior years.

- a. Sophomores would already know basic lab procedures through the freshman chemistry labs and would be taking Organic Chemistry labs concurrently. Also they will have a better foundation in biology having completed ABio120 and 121 and would be taking ABio212Y (Genetics) and ABIO217 (Cell Biology) concurrently. This is pedagogically desirable.
- b. Currently many students take the General Biology Labs as freshmen and then no other biology labs until their senior year, by which time they have forgotten basic procedures, how to write lab reports, safety procedures, and the basics of experimental design. Closing the gap is again pedagogically desirable.
- c. It would reduce the otherwise very science-heavy course-load for students in their freshman year, and allow them to take general education courses instead. This may eliminate some of the attrition of Biology majors in the freshman year. It also presents a more natural progression through their studies where they increase the number of courses in their major as they advance through their four years.
- d. Contained within this proposal is the requirement for a passing grade in ABio 120, a grade of C or better in ABio121, and passing grades in AChm120, AChm121, AChm124, and AChm125 for enrollment in ABIO201 and 202Z. We already have in place a requirement for a C or better in ABio121 for enrollment in ABio212Y and for a C or better in ABio212Y for enrollment in ABio365. The course prerequisites are in place because the knowledge gained in one course is required for the others. Long experience has indicated that students that have not gained sufficient knowledge in the a prerequisite not only are doomed to do poorly in a course but, if there are sufficient numbers, place a drag in the progress through the material, consuming both the instructors' and other students' time. The proposed changes will significantly contribute to changing this pattern, and allow us to better utilize our current resources. Students who have not achieved at least a C in ABio121 and passed General Chemistry will not be prepared for the ABio201 and 202Z labs. They will defeat the purpose of placing these labs in the second year and bloat the numbers of students dissipating time and money. 2/2/12 update: Prerequisite of C in Bio 121 has been deleted at this time.

3. Requiring ABio 217 (Cell Biology).

The cell is the basic unit of life, and it is difficult to imagine an educated biologist who is not well schooled in cell biology.

- a. As a consequence, Cell Biology should be classified as a "core" course, alongside Genetics, Biochemistry, and Evolution.

- b. Cell Biology would be an intermediate course along with Genetics between the General Biology courses and the upper level Bio core, further increasing the potential for depth of understanding of higher level material. It also has the benefit of ensuring that our students take a Biology lecture course both semesters of their sophomore year.
- c. If ABio 217 were required, it could be reasonably listed as a prerequisite for courses such as ABio 303 (Developmental Biology), ABio 335 (Immunology), and ABio 341 (Neurobiology). Students in these latter courses would find themselves better prepared after having taken Cell Biology.
- d. Faculty teaching upper division course would know that students have a solid foundation in cell biology and could avoid time consuming background reviews.

4. Eliminating the required courses in each of three areas.

With the addition of Cell Biology to the requirements of the two Introductory Biology courses plus Genetics, Biochemistry, and Evolution, we believe that students will have the breadth in their biological education to allow them to concentrate on the area(s) of their interest.

- a. To meet the current requirements, students must take one course for each of the three areas: Molecular-Cell Biology, Development-Function, and Ecology-Behavior-Diversity. ABio365 (Biochemistry) and ABio212Y (Genetics) fall into the first category, ABio217 (Cell Biology) falls into the second, and ABio402 (Evolution) falls into the third. Therefore the breadth will be met with the required courses.
- b. Although an additional course will be required, the students will still have more freedom to take upper level biology elective courses plus the three laboratory courses with no restrictions. For example, a student could satisfy the Biology elective credits by taking ABio341 (Neurobiology), ABio441 (Molecular Neurobiology), and ABio410 (Human Physiology). A student is currently discouraged from this set of courses because of the need to satisfy requirements in other areas.
- c. The current system has proved cumbersome in that it requires the department to mount a larger variety of courses that are not necessarily pedagogically justified, but are needed to provide some variety in choices in the three areas. In some cases, courses have been classified in an area in which they do not really fit in order to provide this choice, such as ABio325 (Comparative Anatomy of the Chordates), which satisfies the EBD requirement but does not give a broad additional grounding in the EBD area. This will facilitate review of our upper level course offerings so that we may consider readjustments to both improve our program pedagogically and promote maximum use of our existing resources.

5. Requiring minimum grades for advancement through the major

Contained within this proposal is the requirement for a passing grade in Bio 120 , a grade of C or better in ABio121, and passing grades in AChm120, AChm121, AChm124, and AChm125 for enrollment in ABIO201 and 202Z. We already have in place a requirement for a C or better in ABio121 for enrollment in ABio212Y and for a C or better in ABio212Y for enrollment in ABio365. The course prerequisites are in place because the knowledge gained in one course is required for the others. Long experience has indicated that students that have not gained sufficient knowledge in the a prerequisite not only are doomed to do poorly in a course but, if there are sufficient numbers, place a drag in the progress through the material, compromising both the instructors' and other students' time. Students who have not achieved at least a C in ABio121 and passed General Chemistry will not be prepared for the ABio201 and 202Z labs. This will defeat the purpose of placing these labs in the second year and bloat the numbers of students negatively impacting time and money. 2/2/12 update: Prerequisite of C in Bio 121 has been deleted at this time.

Updates to Online Bulletin Text

The B.S. programs provide a strong background for further study either in graduate school or medicine and prepare the student for secondary school teaching and a variety of careers in biology at the technical level. Graduates with a B.S. degree often find technical-level positions with pharmaceutical companies or as research assistants in grant-related positions. Those who go on to graduate or professional school have a wide array of career opportunities in research, health fields, and business.

[from 2009-10 Undergrad Catalogue]

General Program B.S.: Combined major and minor sequence consisting of a minimum of 66 credits.

Required courses:

A BIO 120 & 122, 201 & 202Z, 212Y, 217, 365, 402.

A PHY 105 or 140, 106 or 145, 108 or 150, 109 or 155.

AMat108 and 111, OR AMat 108 and 112, OR AMat111 and 113, OR AMat112 and 113

A CHM 120 or 130, 121 or 131, 124, 125, 220, 221, 222, 223.

15 additional credits in biology are also required, and must include at least 3 courses which are partially or exclusively laboratory courses.

Credits in A BIO 399/399Z and 499/499Z may be used to fulfill the requirement for 1 laboratory course if the student completes at least 4 credits over at least 2 semesters. A BIO 399/399Z and 499/499Z may contribute a total of 4 credits towards the major. Courses that do not yield credit toward the major are so indicated in the individual bulletin descriptions.

Courses in the combined major/minor sequence must include at least 6 credits at the 300 level and at least 3 credits at the 400 level or above. Graduate courses are open to qualified seniors with appropriate departmental and instructor consent.

Bachelor of Science in Biology Requirements:

<u>A BIO 120 & 122, A BIO 201 & 202Z</u>	<u>8 credits</u>
<u>A BIO 212Y</u>	<u>4 credits</u>
<u>A BIO 217</u>	<u>3 credits</u>
<u>A BIO 365</u>	<u>3 credits</u>
<u>A BIO 402</u>	<u>3 credits</u>
<u>Biology major electives</u>	<u>15 credits</u>
<u>Chemistry</u>	<u>16 credits</u>
<u>Mathematics</u>	<u>7 – 8 credits</u>
<u>Physics</u>	<u>8 credits</u>
<u>Total</u>	<u>67 - 68 credits</u>

Current Biology Course Descriptions with Changes Highlighted

A BIO 201 General Biology I Lab (1)

First course in a two-semester lab sequence which explores fundamental concepts in biology and introduces common biology laboratory techniques. Techniques include microscopy, sterile technique, slide preparation and staining, scientific thinking and application of the scientific method, construction and interpretation of graphs and composition of lab reports. Living and preserved organisms are used to study concepts in Evolution, Ecology, Anatomy and Physiology. One laboratory period per week. **May not be taken by students with credit for A BIO 110 or ABIO122. Prerequisite(s): A BIO 120, A Bio 121, and A CHM 120, 121, 124, 125.** Offered fall semester only.

A BIO 202Z General Biology II Lab (1)

Second course in a two-semester lab sequence which explores fundamental concepts in biology and introduces common biology laboratory techniques. Emphasis is placed on experimental design, interpretation of results and critical composition of lab reports. Topics covered include Biochemistry and Molecular Biology, Laboratory Math, Genetics, Cell Biology, Neurobiology and Behavior. One laboratory period per week. **May not be taken by students with credit for A BIO 111 or ABIO123Z. . Prerequisite(s): A BIO 120, A Bio 121, and A CHM 120, 121, 124, 125.** Offered spring semester only.

A BIO 217 Cell Biology (3)

An introduction to modern cell biology. This course will present the basic organization of eukaryotic cells while stressing their elaborate structural-functional integration. The cells fundamental properties conserved through evolution will be stressed. **Prerequisite(s): A BIO 110 or 120, and a grade of C (2.0) or better in A BIO 111 or 121.**

A BIO 298 Contemporary Issues in Biological Sciences, with Laboratory (1-3)

Laboratory classroom training in selected areas of biological sciences. Particular areas of study to be announced each semester. Yields laboratory credit towards the major in biological sciences. May be repeated for credit when topic varies. **Prerequisite(s): A Bio 201 and 202Z; consult with instructor for further specific prerequisites.** S/U or A-E graded. May not be offered 2011-2012.

A BIO 302Z Cell Biology Laboratory (2)

Introduction to modern techniques in cell biology, including advanced optical microscopy, DNA extraction and analysis, protein electrophoresis and western blotting, cell homogenization and fractionation, and cell culture. These techniques are used to investigate cell motility, membrane structure and permeability, mitochondrial respiration, DNA replication, the cell cycle, and cell adhesion. One laboratory period per week; additional time as required. **Prerequisite(s): A Bio 201 and 202Z.** Prerequisite(s) or corequisite(s): A BIO 217 and 365.

A BIO 305 Developmental Biology Laboratory (2)

This laboratory course examines the mechanisms of animal and plant development at the molecular and cellular level by modern and classical techniques. Topics include gametogenesis, fertilization, early and later development, cell division and morphogenesis. One laboratory period per week; additional time as required. **Prerequisite(s): A Bio 201 and 202Z.** Prerequisite(s) or corequisite(s): A BIO 303.

A BIO 315 Microbiology Laboratory (2)

Laboratory studies that deal with the culture and study of microorganisms, the dynamics of microbial growth, and the physiological basis of bacterial identification. One laboratory per week; additional flexible time as required.

Prerequisite(s): A Bio 201 and 202Z, A BIO 212Y and 365. Prerequisite(s) or corequisite(s): A BIO 314.

A BIO 325 Comparative Anatomy of Chordates (4)

Comparative study of embryonic development, functional morphology, adaptive radiation, and evolution of chordates.

Three class periods, one laboratory period each week. Not open to freshmen. **Prerequisite(s): A Bio 201 and 202Z.**

A BIO 326 Environmental Microbiology Laboratory (2)

Explores the role of microbes in natural and human-impacted systems through topics such as nutrient cycling, waste degradation, bioremediation, waterborne disease, food safety, and pollution control. Informal lectures and current events discussions may be incorporated into laboratory exercises. One laboratory per week; additional flexible time as required. **Prerequisite(s): A Bio 201 and 202Z,** A BIO 212Y, and 314. Prerequisite(s) or corequisite(s): A BIO 365.

A BIO 327 (formerly A BIO 445) Experimental Ecology (3)

Fundamental ecological concepts are demonstrated with experimental manipulations and comparative assessment techniques. Local ecosystems are studied; the focus is on the effects of land use on ecosystem structure and function. Ecological assessment skills are developed in the field and laboratory. Lectures couple fundamental and applied topics, balancing understanding of ecological principles with realistic environmental problem solving. Students contribute to a report that becomes part of the record for a municipal wetland. **Prerequisite(s): A Bio 201 and 202Z.**

A BIO 336Z Laboratory in Immunology (2)

Modern laboratory techniques will be performed to study the cellular and humoral components of the immune system; immune cells and cell markers, immunoglobulin purification and characterization, antibody and antigen identification assays including immunodiffusion and immunoelectrophoresis, and enzyme-based immunoassays (ELISA). One laboratory per week, plus additional flexible time as required. **Prerequisite(s): A Bio 201 and 202Z.** Prerequisite(s) or corequisite(s): A BIO 335.

A BIO 342 Neurophysiology Laboratory (2)

A computer-based laboratory course examining the electrophysiological properties of the nervous system. The course will cover basic principles underlying resting potentials, passive electrical properties, action potentials, synaptic transmission and oscillatory neural networks. Simulation software will be used to model nerve cells and neural networks. Demonstrations of basic electrophysiological techniques will parallel the computer simulations. **Prerequisite(s) A Bio 201 and 202Z,** and A BIO 341 or permission of instructor.

A BIO 367 Biochemistry Laboratory (2)

This laboratory course is designed to provide basic training in various procedures used in present day biochemical research. These will include methods for protein purification, enzyme kinetics, peptide sequencing, and fractionation of intracellular components. In addition, biochemical processes such as glucose metabolism and photosynthesis will be studied. One laboratory period each week. **Prerequisite(s): A Bio 201 and 202Z.** Prerequisite(s) or corequisite(s): A BIO 365 or equivalent and permission of instructor.

A BIO 372 Emergency Medicine Clinical Research (4)

This is a combined 1 hour lecture 5 hour lab course designed to expose students to the theory and practice of clinical research in the Albany Medical Center Emergency Room. Students will be involved in research subject enrollment and data collection for ongoing studies in the AMC Department of Emergency Medicine. Students will obtain certification as a human subjects investigator, and will have direct exposure to a wide variety of patients, situations, which will require a high degree of professionalism, maturity and insight will be demanded of all students at all times. Students will schedule one 5 hour period each week carrying out data collection and subject enrollment. During the initial three weeks, the

scheduling will need to coincide with the availability of faculty. Subsequently, there will be a freedom in scheduling.

Prerequisite(s): A Bio 201 and 202Z, junior or senior standing, 18 credits in Biology, and permission of instructor.

A BIO 398 Topics in Biology, with Laboratory (1-3)

Issues in selected areas of biology. Particular areas of study to be announced each semester. Yields laboratory credit toward the major in biological sciences. May be repeated for credit, when topic varies. **Prerequisite(s):** A Bio 201 and 202Z, junior or senior standing, and permission of instructor. May not be offered 2011-2012.

A BIO 406 Vertebrate Histology (4)

Microanatomy and function of animal cells, tissues and major vertebrate organs, excluding the brain. Practical work with bright-field microscopy and preparation of formalin-fixed, paraffin-embedded, sectioned and stained tissues. Three class periods, one laboratory period each week. Extra time may be needed to complete individual projects. **Prerequisite(s):** A Bio 201 and 202Z; A BIO 212Y; A BIO 325 and/or 410 recommended but not required.

A BIO 411Z Human Physiology Laboratory (2)

A mixture of lab experiments and computer simulations in systemic physiology with emphasis on membrane transport and excitability, muscle contraction, cardiovascular regulation, respiration and metabolism, acid-base control, renal system physiology, and sensory physiology. Three hours laboratory and one hour discussion per week, with emphasis on writing of scientific lab reports. **Prerequisite(s):** A Bio 201 and 202Z. **Corequisite(s):** A BIO 410.

A BIO 426 Laboratory in Molecular Biology (2)

Experiments in the modern techniques of recombinant molecular biology will be performed. These may include restriction mapping of plasmids, gene cloning, DNA blotting, DNA sequence analysis, plasmid constructions, and gene expression studies. One laboratory per week, plus additional flexible time as required. **Prerequisite(s):** A Bio 201 and 202Z, A BIO 212Y. **Prerequisite(s) or corequisite(s):** A BIO 365 and 425.

A BIO 435 Methods in Biotechnology (2)

This laboratory course is designed to provide training in modern techniques used in Forensic and Biomedical fields. These will include sequential methods for RT-PCR, PCR product cloning, analysis of recombinant plasmid clones, PCR-based VNTR genotyping, Restriction Fragment Length Polymorphism analysis, immunoblotting and immunofluorescence staining. One laboratory period each week. **Prerequisite(s):** A Bio 201 and 202Z. **Prerequisite(s) or corequisite(s):** A BIO 365 or permission of instructor.

Letter from the Department of Mathematics assessing the impact of the changes in the Math requirements

From: Plotnick, Steven [<mailto:splotnick@albany.edu>]
Sent: Tuesday, October 11, 2011 12:54 PM
To: McKeon, Denise M
Cc: Newman, Stacy A; Zhu, Kehe
Subject: FW: Biology requests response

Dear Denise,

The math department supports your proposal, which will direct your BS majors away from Math 106 and toward the 112-113 sequence, since this will give your majors a stronger calculus background. We will have to direct some teaching resources away from 106 toward our 112-113 sequence, but this shouldn't be a problem. Your proposal shouldn't have much effect on Math 108, as I suspect most majors will continue to take (or should be encourage to take) basic statistics.

Best,
Steve Plotnick
Director of Undergraduate Studies
Department of Mathematics

University at Albany – State University of New York

College of Arts and Sciences

Course and Program Action Form

Proposal No. 11-078A

Please check one: Course Proposal Program Proposal

Please mark all that apply:

<input type="checkbox"/> New Course	Revision of: <input checked="" type="checkbox"/> Number	<input type="checkbox"/> Description
<input type="checkbox"/> Cross-Listing	<input type="checkbox"/> Title	<input checked="" type="checkbox"/> Prerequisites
<input type="checkbox"/> Shared-Resources Course	<input type="checkbox"/> Credits	
<input type="checkbox"/> Deactivate/Activate Course (boldface & underline as appropriate)	<input type="checkbox"/> Other (specify): _____	

Department: **BIOLOGICAL SCIENCES** Effective Semester, Year: **FALL 2012**

Course Number Current: **ABIO 122** New: **A BIO 201** Credits: _____

Course Title: **GENERAL BIOLOGY I LAB**

Course Description to appear in Bulletin:

First course in a two-semester lab sequence which explores fundamental concepts in biology and introduces common biology laboratory techniques. Techniques include microscopy, sterile technique, slide preparation and staining, scientific thinking and application of the scientific method, construction and interpretation of graphs and composition of lab reports. Living and preserved organisms are used to study concepts in Evolution, Ecology, Anatomy and Physiology. One laboratory period per week. May not be taken by students with credit for A BIO 110 Or A BIO 122. Prerequisite(s): A BIO 120, a grade of C (2.0) or better in A BIO 121, and A CHM 120, 121, 124, 125. Offered fall semester only.

Prerequisites statement to be appended to description in Bulletin:

Prerequisite(s): A BIO 120, A BIO 121, and A CHM 120, 121, 124, 125.

If S/U is to be designated as the only grading system in the course, check here:

This course is (will be) cross listed with (i.e., CAS ###): _____

This course is (will be) a shared-resources course with (i.e., CAS ###): _____

Explanation of proposal:

Will permit a more sophisticated laboratory experience for our students. Greater understanding of the basic underlying principles of biology will allow us to design labs that introduce the scientific methodology drawing from a wider range of biological concepts. Lab exercises will better reflect the techniques and questions addressed in research labs, preparing the students for the upper level lab courses and independent research.

Other departments or schools which offer similar or related courses and which have certified that this proposal does not overlap their offering:

Richard Zitomer 10/14/11

Approved by Chair(s) of Departments having cross-listed course(s) [Copy of e-mail approval on following page.]	Date	Dean of College	Date
		Gregory Stevens/Edelgard Wulfert	10/26/11
Pinka Chatterji	10/21/11		

University at Albany – State University of New York

College of Arts and Sciences

Course and Program Action Form

Proposal No. 11-078B

Please check one: Course Proposal Program Proposal

Please mark all that apply:

<input type="checkbox"/> New Course	Revision of: <input checked="" type="checkbox"/> Number	<input type="checkbox"/> Description
<input type="checkbox"/> Cross-Listing	<input type="checkbox"/> Title	<input checked="" type="checkbox"/> Prerequisites
<input type="checkbox"/> Shared-Resources Course	<input type="checkbox"/> Credits	
<input type="checkbox"/> Deactivate/Activate Course (boldface & underline as appropriate)	<input type="checkbox"/> Other (specify): _____	

Department: **BIOLOGICAL SCIENCES** Effective Semester, Year: **FALL 2012**

Course Number Current: **ABIO 123Z** New: **A BIO 202Z** Credits: _____

Course Title: **GENERAL BIOLOGY II LAB**

Course Description to appear in Bulletin:

Second course in a two-semester lab sequence which explores fundamental concepts in biology and introduces common biology laboratory techniques. Emphasis is placed on experimental design, interpretation of results and critical composition of lab reports. Topics covered include Biochemistry and Molecular Biology, Laboratory Math, Genetics, Cell Biology, Neurobiology and Behavior. One laboratory period per week. May not be taken by students with credit for A BIO 111 or 123Z. Prerequisite(s): A BIO 120, a grade of C (2.0) or better in A Bio 121, and A CHM 120, 121, 124, 125. Offered spring semester only.

Prerequisites statement to be appended to description in Bulletin:

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Explanation of proposal:

Will permit a more sophisticated laboratory experience for our students. Greater understanding of the basic underlying principles of biology will allow us to design labs that introduce the scientific methodology drawing from a wider range of biological concepts. Lab exercises will better reflect the techniques and questions addressed in research labs, preparing the students for the upper level lab courses and independent research. The general education WI requirement remains unchanged from A BIO 123Z.

Other departments or schools which offer similar or related courses and which have certified that this proposal does not overlap their offering:

Richard Zitomer

10/14/11

Approved by Chair(s) of Departments having cross-listed course(s) [Copy of e-mail approval on following page.]	Date	Dean of College	Date
		Gregory Stevens/Edelgard Wulfert	10/26/11
Pinka Chatterji	10/21/11		

University at Albany – State University of New York

College of Arts and Sciences

Course and Program Action Form

Proposal No. 11-078C

Please check one: Course Proposal Program Proposal

Please mark all that apply:

- | | | | |
|---|--------------|---|---|
| <input type="checkbox"/> New Course | Revision of: | <input type="checkbox"/> Number | <input type="checkbox"/> Description |
| <input type="checkbox"/> Cross-Listing | | <input type="checkbox"/> Title | <input checked="" type="checkbox"/> Prerequisites |
| <input type="checkbox"/> Shared-Resources Course | | <input type="checkbox"/> Credits | |
| <input type="checkbox"/> Deactivate/Activate Course (boldface & underline as appropriate) | | <input type="checkbox"/> Other (specify): | |

Department: **BIOLOGICAL SCIENCES** Effective Semester, Year: **FALL 2012**

Course Number Current: **ABIO 217** New: Credits:

Course Title: **CELL BIOLOGY**

Course Description to appear in Bulletin:

Prerequisites statement to be appended to description in Bulletin:

Prerequisite(s): A BIO 110 or 120, and a grade of C (2.0) or better in A BIO 111 or 121.

If S/U is to be designated as the only grading system in the course, check here:

This course is (will be) cross listed with (i.e., CAS ###):

This course is (will be) a shared-resources course with (i.e., CAS ###):

Explanation of proposal:

Cell Biology will be added to the Bio/BS core curriculum as an intended second-year course to be taken in either the fall or spring semester. Since it will be available as a fall course, the logical and appropriate prerequisites are General Biology I and II. The grade requirement will ensure that students have an adequate understanding of first year material to facilitate success in the second year course. Genetics (A Bio 212Y) has a similar prerequisite.

Other departments or schools which offer similar or related courses and which have certified that this proposal does not overlap their offering:

Richard Zitomer 10/14/11

Approved by Chair(s) of Departments having cross-listed course(s) [Copy of e-mail approval on following page.]	Date	Dean of College	Date
		Gregory Stevens/Edelgard Wulfert	10/26/11
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