Rowan University

PROCESS A Non General Education Curriculum Proposal SCC#05-06- 176

Library Resource Form Required for New Non-Gen-Ed

Submission Deadlines: Fall - October 11, 2005 Spring - February 14, 2006

TITLE Biology 3t: Biological Skills and Methods

Sponsor(s) Courtney Richmond *e-mail:richmond@rowan.edu*
e-mail:
e-mail:

DEPARTMENT Biological Sciences
College LAS

*If **LAS**-check:* ___ *History/Humanities* ___ *Social/Behavioral Sciences*

X *Math/Science*

X UNDERGRADUATE ___ GRADUATE

X New non gen-ed X Major
___ Short-Term non gen-ed
___ Minor curricular changes (
___ Existing non gen-ed cours
___ Non gen-ed degree requir
___ Major
___ Minor, specialization, cenc

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DB 5/23/06

Signatures Required: representing approval befo ***Senate***

Department Chair: Date:
Department CURRICULUM Chair: Date: 10/7/05
Academic DEAN: Date: 10/11/05

COLLEGE CURRICULUM COMMITTEE: Open Hearing Date: 12/06/05
Approved ✓
Not Approved

Signature: College Curriculum Chair

Signature: SENATE CURRICULUM CHAIR
Date:

Comments:

Signature: Executive Vice President/Provost:
Date:
Approved:
Not Approved:

Signature: REGISTRAR
Date: 3/31/06 Course Description Received & Approved
Hegis Taxonomy & Course # BIOL 01.202

Notification Forward:

✓ SCC CHAIR ✓ Academic Dean
✓ IR ✓ Department Chair
✓ CAP ✓ VP/Student Affairs
✓ Registrar ___ Other-

5/10/06

Rowan University

Curriculum Proposal- LIBRARY RESOURCE FORM

SCC#05-06- 126

This form ***MUST BE COMPLETED FOR NEW COURSE or PROGRAM PROPOSALS, and EXTENSIVE HANGES TO A COURSE or PROGRAM.***

The purpose of this form is to provide a channel of communication between the Campbell Librarians and faculty when submitting new course or program proposals, or making extensive changes to existing courses or programs. The information will be used to assess the resources available in the library, and to identify resources the library should acquire to support the new courses/programs, or extensive changes to same. The information will also provide the rationale for institutional support for library acquisitions. This form should be completed in a coordinated effort between the course sponsor(s) and the academic department liaison librarian.

Note: Sponsor(s) complete parts A & B
If assistance is required to complete, please notify the librarian liaison.
Forward this form to the librarian who will complete parts C, D & E

When form is completed, attach to the original curriculum proposal before submitting to the Senate office.

A. ***College:*** LAS	***Department:*** Biological Sciences
Proposed by: Courtney Richmond	Date: 10/7/2005

COURSE TITLE: Biology 3t: Biological Skills and Methods

Anticipated Date for Course/Program Offering: Fall 2006

B. ***List specific resources that should be acquired to support this course.***

We anticipate that current library resources are sufficient for this course.

C. ***Describe the resources available in the library to support this course/program, including reference, monographic, electronic databases, audio-visual materials, etc. A summary statement is sufficient.***

We have 92 books in the library under the subject heading Technical Writing, and 63 books under the heading Experimental Design. Various materials in statistics and data analysis are also available.

D. ***List key periodicals available in the library to support this course/program.***

We have a print subscription to *Biology Digest* which contains abstracts of current life science articles and research reports for college students.

E. ***Librarian comments & recommendations:***

The library can support the new course with our current resources.

LIBRARIAN LIAISON: Denise Brush Signature: Denise A. Brush

eld/05

New Course Proposal
Biological skills and methods

Details

a. Course Title: Biology 3t: Biological skills and methods (0401.202)

b. Sponsor: Courtney Richmond, Assistant Professor
Department of Biological Sciences

c. Credit Hours: 4 s.h.

d. Course Level: Undergraduate (200-level)

e. Prerequisites: transfer equivalents to Biology I and Biology II (0401.100 and 0401.101)

f. The proposed course would be offered for the first time fall semester 2007 and will be offered every fall semester thereafter. This course is intended for students transferring into the Biology major having had the traditional Biology I and II sequence at another institution.

Curricular Effects

This course will enable transfer students to enter the Biology major, having had Biology I and II at another institution. Since our new Biology major curriculum will no longer match the traditional model of Biology I and II, it has become necessary to create a course that will prepare transfer students for Biology 4, as well as for our upper-level courses.

Transfer students will therefore be given transfer credits for Biology 1 and 2 (0401.103 and 0401.104), this course will serve as a replacement for Biology 3 (0401.203) which our native majors will take, and then the transfer students will take Biology 4 (0401.204) to complete the four-course core of our new curriculum. There should be no impacts on other departments or majors.

The personnel, facilities and resources of the Biological Sciences department are adequate for the proposed course and no cost of implementation is expected. Library resources are also adequate to meet the present needs of this course.

Rationale

This course is designed to integrate transfer students into our new core curriculum and the upper-level courses that will be redesigned along the lines of the focus of this new curriculum. While transfer students will enter the Biology major having had traditional Biology I and II courses, it is expected that they will not have been

exposed to the skills we are building into our new core curriculum. In this new curriculum, we are taking the essential components of our current Biology I and II courses (0401.100 and 0401.101) and incorporating them into four core courses (Biology 1-4). Each course will introduce new skills (e.g. critical thinking, experimental design, data collection and interpretation, use of primary literature, oral and written scientific presentations, etc.) while building upon skills introduced in courses earlier in the core sequence. The course we propose here, Biology 3t (0401.202), will expose the transfer students to the skills they would have acquired in Biology 1-3 (0401.103, 0401.104, and 0401.203), while covering selected materials from those three courses, such that they can enter Biology 4 (0401.204) at no disadvantage relative to our native students.

Essence of the Course

a. Objectives of the Course: This course will introduce transfer students to the skills and knowledge necessary to succeed in our new Biology core curriculum. Our upper-level courses will be run in the future to incorporate these new skills, so the continued success of a Biology major will be contingent upon their familiarity and comfort with these new skills. We will choose selected topics from the new core courses Biology 1, 2, and 3 (0401.103, 0401.104, and 0401.203) to use in this course, to ensure that these students were adequately exposed to certain topics in the Biology I and II courses they took. Throughout this course, we will focus on skill building and the reinforcement of these skills, so that the transfer students will be prepared for Biology 4 (0401.204) the following semester.

Student Outcome Objectives:

- Develop oral and written scientific presentation skills
- Develop skills for reading and understanding primary literature papers
- Familiarity with experimental design, data collection, and basic data analyses
- Familiarity with both the creation and interpretation of graphs and data tables
- Increased critical thinking skills

b. Topical Outline/Content

Lecture Content:

Natural selection and evolution
Cell structure and function
Membrane structure and homeostasis
Enzymes
DNA structure and function
Mendelian genetics and inheritance
Cellular energetics: photosynthesis and respiration

Laboratory Content:

The laboratory portion of the course will be used to reinforce topical concepts covered in class and to expose students to experimental approaches to various fields in science. Various methods can be used to achieve these goals. In the laboratory a combination of the following techniques will be used at the discretion of the course instructor:

1. Investigative laboratory exercises: Students will be guided through a series of laboratories designed by the course instructor to expose students to a particular experimental approach and/or laboratory skills.
2. After an initial exposure to a particular technique or experimental approach, students will design and execute their own experiments using the newly learned approach/technique.
3. Literature research: Students will explore experimental approaches through analysis of the primary and secondary literature and my use this literature to design and execute experiments.

c. Evaluation of Students and Grading

Students will be evaluated using various tools which may include written exams, written and oral analysis of scientific literature, oral presentations, and class discussion. In addition, assessment of laboratory work may include evaluation of the following: laboratory notebooks, experimental designs, laboratory reports, and oral presentations.

d. Course Evaluation

The Biological Sciences Department evaluates all courses to ensure that they meet the requirements of the Department, the College of Liberal Arts and Sciences, and the University. The assessment of these new core courses will be particularly rigorous and will follow procedures outlined in the proposal detailing the overall changes to the Biology major.

Results of Consultations

a. Letters of consultation: the members of the Biological Sciences Department have been solicited for comments on the course proposal, and they have confirmed that this course would meet the standards of their department. A letter of consultation from the department chair is attached.

No other department is anticipated to be impacted by this course, so we do not include any additional letters of consultation

Catalog Description

Biology 3t: Biological skills and methods (0401.202)
Prerequisites: transfer equivalents to Biology I (0410.100) and Biology II (0401.101)
4 semester hours

This laboratory course is designed for students transferring into the Biology major after having completed Biology I and Biology II at another institution. This course will review key topics covered in Biology 1, 2, and 3 (0401.103, 0401.104, and 0401.203) while introducing students to a variety of scientific skills covered in those courses. Examples of skills include critical thinking, experimental design, reading of primary literature, data collection, analysis, and interpretation, and oral and written scientific presentations. Credit will not be given for both Biology 3 (0401.203) and 3t (0401.202).

To Whom It May Concern:

This email is intended to confirm not just my endorsement of the five new Biology Core courses and additional changes to the major, but also an endorsement from the Department as a whole. The entire Department has been consulted at every step in the development of these curricular proposals, and it has always met with unanimous support.

These changes will bring our Department to a level similar to comparable institutions. The emphasis in the new Core will be not just on knowledge content, but also on the skill content. We anticipate that the Core revisions will have a profound impact on the sophistication of our upper-level courses and on the marketable skills of our graduates. The commitment of our faculty to these changes is illustrated by their attendance at weekly core curriculum development meetings. The additional changes to our degree requirements directly address Department objectives and will enrich the qualifications and skill sets of our majors.

These new courses and the overall curricular changes have my strong, enthusiastic support, and I am happy to confirm that the Department is eager to implement them.

Sincerely,

Gregory B. Hecht, Ph.D.
Interim Chairperson
Associate Professor of Microbiology
& Molecular Biology
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