Rowan University

PROCESS A Non General Education Curriculum Proposal SCC#05-06- 105

Library Resource Form Required for New Non-Gen-Ed

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

TITLE	Biology 4: Global Ecology
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

X New non gen-ed

___ Short-Term non gen-ed

___ Minor curricular changes

___ Existing non gen-ed cours

___ Non gen-ed degree requir

___ Major

___ Minor, specialization, cencentration, track, certificate program

richmond
hecht
demeter

DF 9/22/05

Signatures Required: representing approval before submission to Office of the Senate

Department Chair: Date:

Department CURRICULUM Chair: Date: 10/7/05

Academic DEAN: Date: 10-11-05

COLLEGE CURRICULUM COMMITTEE: Open Hearing Date: 18 Nov 2005

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 01.204

Notification Forward:

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

5/1/06

New Course Proposal
Rowan University
Department of Biological Sciences

Details

a. Course Title: Biology 4: Global Ecology (0401.204)

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

c. Credit Hours: 4 s.h.

d. Course Level: Undergraduate (200-level)

e. Prerequisites: Biology 1, Biology 2, and Biology 3 (~~0401.103~~, ~~0410.104~~, and ~~0410.203~~), or transfer equivalents to Biology I (0401.100), Biology II (0401.101) and Biology 3t (0401.202)

f. The proposed course would be offered for the first time spring semester 2008 and will be offered on an annual basis. All Biology majors will enroll in this course, including transfer students.

Curricular Effects

Biology 4 (0401.204) is a new addition to the Biological Sciences Department offerings and will be required for all biology majors and minors. The topics covered in this course have been offered to some degree within the existing Biology II (0401.101) course, which will be dropped as a course offering.

Transfer students will be required to take this course after transferring into the biology major with the equivalents of a traditional Biology I and II sequence, and after taking our new Biology 3t (0401.202) course, specifically designed for transfer students. 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. A number of faculty could teach this course, including Drs. Grove, Mosto, O'Brien, Prieto, and Richmond. Library resources are adequate to meet the present needs of this course.

Rationale

As the last of four courses in the proposed Biology core curriculum, students in Biology 4 (0401.204) will both reinforce and build upon the skills and knowledge developed in the previous three core courses. As the final course in this core

Rowan University

Curriculum Proposal- LIBRARY RESOURCE FORM

SCC#05-06- 826

This form ***MUST BE COMPLETED FOR NEW COURSE or PROGRAM PROPOSALS, and EXTENSIVE CHANGES 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 4: Global Ecology

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 105 books in the library under the subject heading Ecology. Databases supporting this area include Science Direct, Medline, Nature, Annual Reviews, and Biological and Agricultural Index.

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

We have a large number of print and online periodical subscriptions supporting ecology. These include: *Ecological Applications*, *Ecological Monographs*, *Journal of Wildlife Management*, *Conservation Biology*, *Ecology*, *Environment*, and *Journal of Ecology.*

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

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

IBRARIAN LIAISON: Denise Brush Signature: Denise A. Brush

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sequence, Biology 4 (0401.204) will represent the culmination of the knowledge and skills taught in the new core. This laboratory course will emphasize ecology and environmental Science, with a particular focus on community and ecosystem-level processes. It will draw upon the knowledge acquired in Biology 1, 2, and 3, (0401.103, 0401.104, and 0401.203) and students will be required to critically synthesize and integrate what was covered in these earlier courses into community and ecosystem-level ecological processes.

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. We have created a new course (Biology 3t, Hegis # 0401.202) specifically designed for transfer students to learn the skills (e.g. critical thinking, experimental design, data collection and interpretation, use of primary literature, oral and written scientific presentations) we will teach in our new Biology 1 and 2 (0401.103 and 0401.104) courses, so that they will be adequately prepared to perform well in this new course, Biology 4 (0401.204), and subsequent upper-level biology courses they elect to take after completion of the core.

Essence of the Course

a. Objectives of the Course: This course will introduce transfer students to the fundamentals of Ecology, particularly at the community and ecosystem levels. We will integrate both information and skills covered in the preceding three-course core sequence, applying them to ecological and environmental patterns and issues.

Student Outcome Objectives:

- Reinforce critical thinking and communications skills from earlier core courses
- Integrate biological knowledge from the subcellular level up to the level of the individual, and then apply the information to ecological and environmental processes
- Require students to read and create synthetic literature review papers
- Build upon written communication skills through writing and re-writing

b. Topical Outline/Content

Lecture Content:

- controls on population growth
    - exponential and logistic population growth
    - life history tables and changes in fecundity/mortality schedules
    - resource competition
    - energy transfer between organisms
- global biodiversity patterns
    - latitudinal patterns

- island biogeography: theory and empirical examples

- Biogeochemical cycling
  - basic pathways carbon and nitrogen cycling
  - roles of bacteria and other organisms in cycling
- case studies of anthropogenic impacts
  - endocrine disruptors
  - species extinctions and biodiversity loss
  - alterations in biogeochemical cycling

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 4: Global Ecology (0401.204)

Prerequisites: Biology 1, Biology 2, and Biology 3 (0401.103, 0410.104, and 0410.203), or transfer equivalents to Biology I (0401.100), Biology II (0401.101) and Biology 3t (0401.202)

4 semester hours

This laboratory course serves as the capstone for the biology core curriculum. Students will learn integrative concepts linking topics from Biology 1, 2, and 3 together in terms of population, community, and ecosystem-level ecological processes. We will explore these concepts through case studies covering diverse topics from biodiversity patterns to anthropogenic effects on individuals to ecosystems. This course will reinforce the skills introduced in earlier core courses, and will build upon these skills with further expectations of writing, primary literature synthesis and review, and critical thinking.

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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