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OFFICE OF THE PROVOST
PROCESS A
APR 1 2004
HOWAN UNIVERSITY

NON-GENERAL EDUCATION ~ CURRICULUM PROPOSAL
LIBRARY RESOURCE FORM REQUIRED

SCC #03-04- 127 ✓

Deadlines

October 3, 2003 to be implemented Fall 2004 ~ February 13, 2004 to be implemented Spring 2005

PROPOSAL TITLE: Comparative Embryology (undergraduate course)

Sponsor(s): Joanne Scott, Ph.D E-Mail: scottj@howan.edu Ext: 3457
E-Mail: _____ Ext: _____

DEPARTMENT: Biological Sciences

COLLEGE: Liberal Arts & Sciences

If Liberal Arts & Sciences CHECK: History/Humanities Math/Sciences Social/Behavioral Sciences

UNDERGRADUATE GRADUATE

THE ATTACHED **NON-GEN-ED** PROPOSAL IS BEST DESCRIBED BY THE ITEM(S) CHECKED

- New non-gen-ed course
- Short-term non-gen-ed course
- Minor curricular changes (fewer than three) to:
 - Existing non-gen-ed course
 - Non-gen-ed degree requirements
 - Major
 - Minor, specialization, concentration, track, certificate program

THE FOLLOWING SIGNATURES REPRESENT APPROVAL

Department Chair: [Signature] Date: 9/29/03
 Department Curriculum Chair: [Signature] Date: 9/29/03
 Academic Dean: [Signature] Date: 10-2-03

COLLEGE CURRICULUM COMMITTEE

OPEN HEARING Date: 12/4/03 Approved Not Approved

COLLEGE CURRICULUM CHAIR: [Signature]

Senate Curriculum Chair Signature: [Signature] Date: Senate Announcement 3-21-2004

Comments: As per Greg Hecht
Graduate proposal will be resubmitted (03-04-805) clearly
demonstrating increased rigor of Graduate course PA 2/1/05

EXECUTIVE VICE PRESIDENT/PROVOST Signature: [Signature] Date: 2/11/05

Approved Not Approved

REGISTRAR

Date: 2/11/05 Course Description Received & Approved ~ Hegis Taxonomy & Course #: 0427403

Registrar Signature: [Signature]

NOTIFICATION FORWARD

- SCC Chair
- Academic Dean
- Department Chair
- Registrar
- IR
- CAP
- VP Student Affairs
- Others

TM 2/20/05
(2)

DP/B

Rowan University
CURRICULUM PROPOSAL
LIBRARY RESOURCE FORM

The purpose of this form is to provide a channel of communication between the library and faculty changing and designing new courses/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 course/program. The information will also provide 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. **THIS FORM MUST BE COMPLETED FOR ALL CURRICULUM PROPOSALS.**

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

This form must be completed and attached to the original curriculum proposal before being approved by the Senate Curriculum Committee

A. College Liberal Arts & Sciences Department Biological Sciences
 Proposed by: Joanne Scott, Ph.D. Date: 10-21-03
 Course Title: Comparative Embryology (undergraduate course)
 Anticipated Date for Course/Program Offering: Fall '04

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

None. The library resources are adequate.

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. *Campbell Library has collected both traditional print materials and electronic resources, in support of this course. Of particular note are Science Direct and JStor, two very useful electronic databases for research in embryology.*

D. List key periodicals available in the library to support this course/program.
*Available on subscription or electronically are:
 Developmental Biology
 Current Topics in Developmental Biology
 Development, Growth & Differentiation*

E. Librarian comments and recommendations: *Please email the liaison with any new titles in support of the course, and any ways or means by which the library might assist with readings or sources.*

Name: LIBRARIAN LIAISON William Garrabrant Librarian Signature: William A. Garrabrant

Rowan University
Department of Biological Sciences
New Course Proposal

1. DETAILS:

1a. Course Title: Comparative Embryology

1b. Sponsors: Department of Biological Sciences
Dr. Joanne Scott, Associate Professor

1c. Credit Hours: 4 s.h.

1d. Course Level: Undergraduate (400-level HEGIS number requested)

1e. Curricular Effect:

This undergraduate laboratory course will be an elective for Biological Sciences majors and minors, to be included in both the Anatomy/Physiology and the Zoology curricular banks.

This course will be taught simultaneously and in the same classroom as the proposed graduate course of the same name (04XX.5XX).

1f. Prerequisites:

Biology I and II (0401.100 & 0401.101) or course equivalents, and Senior class standing (≥ 90 s.h. completed prior to taking the course).

1g. Suggested Time Scale of Implementation:

Fall 2004. In subsequent years it will be offered most Spring semesters. The proposed 4-s.h. course will be offered most years instead of the current 3-s.h. Department course "Embryology of Animals".

1h. Adequacy of Present Staff and Department Facilities:

The sponsor, Dr. Scott, was hired in 1989 to teach and develop such courses and has taught the Department's similar course, "General Embryology" every year for 14 years. There are now other faculty in the Biological Sciences Department who are capable of teaching this course, as well.

Since only one section of this course will be offered annually, and since this course would be offered in years that the similar 3-s.h. course would not be offered, the increase in faculty load hours for the Department would be only two additional load hours, which represents an increase of less than one percent of the total load hours for the Department.

The facilities in the Department of Biological Sciences are adequate for the proposed course. Supplies for the course are not expected to exceed \$500 per year.

1i. Library Facilities: The library facilities are adequate. Several useful resources are available free of charge on the World Wide Web.

1j. Short-Term Evaluation: The Department Curricular Committee routinely evaluates all courses to confirm that they meet the standards of the Department, the College of Liberal Arts and Sciences, and the University.

2. Rationale:

For many years, the Department has offered a 3-s.h. graduate course (500-level) entitled “General Embryology”, which was taken by many seniors availing themselves of their “Senior Privilege”. More recently, the Department added a 400-level version of the same course, entitled “Embryology of Animals” (0427.401), which is taught simultaneously, in the same classroom /laboratory as the 500-level course. In other words, we have one course with a “double HEGIS number”. This dual course has been successfully taught every year since its establishment.

The current 3-s.h. course is usually taught one evening per week, and there is a laboratory component to the course. Over the 14 years that the sponsor of this proposal has taught the course, she has become increasingly frustrated with the limitations of teaching a laboratory course that meets for such a relatively short time each week. The proposed 4-s.h. course would enable the instructor to cover the relevant topics of embryogenesis and organogenesis in more depth, to spend more time on the development of the mammalian embryo, and to significantly increase the laboratory component of the course. It will enable the instructor to include discussions of newsworthy topics such as cloning, *in vitro* fertilization, stem cell research, etc.

3. Essence of the Course:

3a. Objectives:

This course introduces the student to the processes involved in embryogenesis of animals, from fertilization to the newborn/newly-hatched. The course includes development of echinoderms, amphibians, birds, and mammals. With the aid of histologic sections, studied in the laboratory, it is hoped that the student will gain an understanding of the three-dimensional formation of embryologic organs and organ systems, and other structures.

The objectives of the course include: 1) to enable students to develop an understanding of the different stages of development an embryo undergoes, and how those stages may differ in comparing echinoderms, amphibians, birds, and mammals; 2) to enable students to more closely visualize the interrelationships of the organs and systems.

3b. Course Outline:

Historical Background
Gametogenesis
Fertilization
Cleavage & Formation of the Blastula
Gastrulation and the Establishment of Germ Layers
Neurulation, & Neural Crest & Somite Formation
Extraembryonic Membranes & the Mammalian Placenta
Basic Body Plan of Young Vertebrate Embryos
Development of Limbs
Development of the Mammalian Eye, Ear, & Face
Development of the Mammalian Muscular & Skeletal Systems
Development of the Mammalian Nervous System
Development of the Mammalian Urogenital System
Development of the Mammalian Respiratory System
Development of the Mammalian Circulatory System
Teratology (the study of birth defects and agents that cause them)

3c. Evaluation and Grading of Students:

Students will be evaluated on the basis of written exams, laboratory reports, the instructor's observation of the students in the laboratory, and class participation.

3d. Course Evaluation: The Department Curricular Committee routinely evaluates all courses to confirm that they meet the standards of the Department, the College of Liberal Arts and Sciences, and the University.

4. Results of Consultation:

All members of the Department have reviewed this proposal, and unanimously approve. This course is similar to the currently offered "Embryology of Animals" (0427.401). The current course will not be offered during years in which the proposed 4-s.h. course is offered.

5. Textbook:

The textbook currently used for the 3-s.h. "Embryology of Animals" course will be used for the newly-proposed course. The new course will be able to cover more chapters, in greater depth. There are several textbooks on the market which would be appropriate for the course, but Dr. Scott believes that the following textbook is the one that best presents the material:

Carlson, B.M. Patten's Foundations of Embryology. 6th edition, 1996. McGraw-Hill, NY.

In addition, laboratory exercises are done. These laboratory exercises are adapted from:

Harrison, B.M. Embryology of the Chick and Pig (A Laboratory Manual). 3rd edition, 1956. W.C. Brown, Dubuque. [Reprinted with permission of the late author's estate.]

6. Catalog Description:

04XX.4XX

4 s.h.

Comparative Embryology

(Prerequisites: 0401.100 and 0401.101; and Senior class standing)

This laboratory course focuses on the morphological and physiologic processes involved in embryogenesis of animals. The course includes the development of echinoderms, amphibians, birds, and mammals. Considerable emphasis will be placed on organogenesis and the development of organ systems.

CATALOG DESCRIPTION

04XX.4XX

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