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OFFICE OF THE PROVOST
PROCESS A
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NON-GENERAL EDUCATION ~ CURRICULUM PROPOSAL
LIBRARY RESOURCES FORM REQUIRED

SCC #03-04- 1105

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

PROPOSAL TITLE: Comparative Embryology (graduate course)

Sponsor(s): Jeanne Scott, Ph.D E-Mail: scottj@rowan.edu Ext: 3457

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 Minor curricular changes (fewer than three) to:
 Short-term non-gen-ed course 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 3-31-2004

Comments: Revision includes distinction between graduate and undergraduate courses - Revisions/Changes highlighted - Original proposal attached Ref 6-3-2005

EXECUTIVE VICE PRESIDENT/PROVOST Signature: [Signature] Date: 7/5/05

Approved Not Approved

REGISTRAR

Date: 7/11/05 Course Description Received & Approved ~ Hegis Taxonomy & Course #: 0427503

Registrar Signature: [Signature]

NOTIFICATION FORWARD

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

Trans 7/25

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: Jeanne Scott, Ph.D. Date: 10-01-03
 Course Title: Comparative Embryology (graduate 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 traditional print resources in embryology, to which it has added electronic resources when they became available. Older articles are available through JSTOR and recent articles through Science Direct, as well as several other electronic databases.*

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; and European Journal of Morphology. Articles on embryology are found across a broad spectrum of life science periodicals.*

E. Librarian comments and recommendations: *Please email the library liaison with any new titles in support of the course. We will also assist with theses as models for graduate research.*

Name: LIBRARIAN LIAISON William Garra-brant Librarian Signature: William Garra-brant

Rowan University
Department of Biological Sciences
New Course Proposal
REVISED 6/2005

1. DETAILS:

1a. Course Title: Concepts of Comparative Embryology

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

1c. Credit Hours: 4 s.h.

1d. Course Level: Graduate (500-level HEGIS number requested)

1e. Curricular Effect:

This laboratory course will be an elective for graduate students. Undergraduate Biology majors and minors may enroll in this course if they avail themselves of the "Senior Privilege". The course will be included in both the Anatomy/Physiology curricular bank as well as the Zoology curricular bank.

This course will be taught simultaneously and in the same classroom as the proposed undergraduate course entitled "Comparative Embryology" (04XX.4XX).

1f. Prerequisites:

Biology I and II (0401.100 and 0401.101) or course equivalents

1g. Suggested Time Scale of Implementation:

Fall 2005. The proposed 4-s.h. course will be offered most years instead of the existing 3-s.h. Department course "General Embryology".

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", each year for 15 years. There are now other faculty in the Biological Sciences Department who are also capable of teaching this course.

Since only one section of this course will be offered annually, and since this course would be offered in years in which the similar 3-s.h. course would not be offered, the increase in faculty load hours for the Department would be only two (2) 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.

Ii. Library Facilities:

The library facilities are adequate. Several useful resources are available free of charge on the World Wide Web.

Ij. 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. graduate course is usually taught one evening per week, and there is a laboratory component to the course. Over the 15 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. (It is the only 3-s.h. laboratory course on campus.) 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 graduate 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 & 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 & agents that cause them)

3c. Evaluation and Grading of Students:

Students will be evaluated on the basis of written exams, laboratory reports, and the instructor's observation of the students in the laboratory. Students enrolled in this 500 level course will have additional assignments, above and beyond what will be required of the students taking the "companion" 400-level course. Assignments may include (but are not restricted to) research involving the primary literature, a paper based on the research, and an oral presentation to the class based on the paper.

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 3-s.h. "General Embryology" (0427.597). The existing 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. "General Embryology" course will be used for the newly-proposed course. The new 4-s.h. 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.5XX

4 s.h.

Concepts of Comparative Embryology

(Prerequisites: 0401.100 and 0401.101; and Senior class standing or graduate student standing)

This graduate 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.

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Rowan University
Department of Biological Sciences
New Course Proposal

Original

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Dr. Joanne Scott, Associate Professor

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This course will be taught simultaneously and in the same classroom as the proposed undergraduate course of the same name (04XX.4XX).

1f. Prerequisites:

Biology I and II (0401.100 & 0401.101) or course equivalents

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 existing 3-s.h. Department course "General Embryology".

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.

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