

FORM A CONT.

1. Proposal Summary

(Summary is generally less than one page. Briefly: state what is proposed with a summary of rationale and highlights. Additional rationale may be attached.)

As the biomedical research industry grows, the need for qualified technicians has increased as well. Students with experience in animal handling techniques may have access to a wider array of job opportunities when they graduate. Although Biotechnology students have always gotten some experience in animal handling in BIOL 388 (Advanced Immunology Laboratory), the larger issues surrounding the use of animals in research cannot be covered with any depth. BIOL 388 is instead focused on providing students with experience in immunological techniques.

Advanced Techniques in Biotechnology has been run as an experimental course for the past 2 years, as a replacement for BIOL 388 in the Biotechnology curriculum. Students were exposed to selected techniques in immunology within a larger framework of how they (and other lab techniques such as cell culture) can be used in answering research questions. Students gain experience in navigating the sometimes complicated steps of engaging in animal research, and how to ensure animals are treated humanely and appropriately in the process.

2. Summary of All Course Action Required*

a. Newly Created Courses to FSU:

Prefix	Number	Title
BIOL	476	Adv. Techniques in Biotechnology

b. Courses to be Deleted From FSU Catalog:

Prefix	Number	Title
BIOL	388	Advanced Immunology Laboratory

c. Existing Course(s) to be Modified:

Prefix	Number	Title
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d. Addition of existing FSU courses to program

Prefix	Number	Title
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e. Removal of existing FSU courses from program

Prefix	Number	Title
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3. Summary of All Consultations

Form Sent (B or C)	Date Sent	Responding Dept.	Date Received & by Whom
B	12/16/09	Physical Sciences	1/19/10 Karen Strasser
C	12/17/09	Library	12/18/09 Karen Strasser

4. Will External Accreditation be Sought? (For new programs or certificates only)

_____ Yes _____X_____ No

If yes, name the organization involved with accreditation for this program.

5. Program Checksheets affected by this proposal.
BS in Biotechnology

CURRICULUM CONSULTATION FORM

To be completed by each department affected by the proposed change, new degree, new program, new minor, or new course. Potential duplication of coursework is reason for consultation.

1. This completed form must be forwarded with the proposal to the chair/head of the department to be consulted.
2. The department must respond within 20 calendar days of receipt of this form to insure inclusion in the final proposal. The completed form is returned to the initiator and inserted into the proposal.

Failure to respond is interpreted as support for the proposal.

3. The Proposing Department must address any concerns raised by the department. This response will be in writing and be included in the proposal following the consultation form.

RE: Proposal Title New Course BIOL 476 (Adv. Techniques in Biotechnology)

Initiator(s): Hartley / Biological Sciences

Proposal Contact: Karen Strasser Date Sent: 12/16/09

Department: Physical Sciences Campus Address: ASC 3021 / frankd@ferris.edu
(Please print)

Responding Department: Physical Sciences

Chair/Head/Coordinator: [Signature] Date Returned: 1/19/10

Based upon department faculty review on 1/19/10 (date), we

- Support the above proposal.
- Support the above proposal with the modifications and concerns listed below.
- Do not support the proposal for the reasons listed below.

Comment regarding the impact this proposal has on scheduling, room assignments, faculty load, and prerequisites for your department. Use additional pages, if necessary.

FLITE SERVICES CONSULTATION FORM

To be completed by the liaison librarian and approved by the Dean of FLITE. All returned forms should be included in the proposal. FLITE must respond within 20 calendar days of receipt of this form to insure that the form is included in the final proposal.

FAILURE TO RESPOND IS CONSIDERED AS SUPPORT OF THE CHANGE.

RE: Proposal Title: New Course BIOL 476 (Adv. Techniques in Biotechnology)

Projected number of students per year affected by proposed change: 13

Initiator(s): Hartley / Biological Sciences

Proposal Contact: Karen Strasser Date Sent: 12-17-09

Department: Biological Sciences **Campus Address:** ASC 2004, strassek@ferris.edu
(Please print)

Liaison Librarian Signature: Margaret Watson **Date:** 12-17-09

Dean of FLITE Signature: Deah M. Monger **Date Returned:** 12/18/09

Based upon our review on 12-17-09 (date), FLITE concludes that:

- Library resources to support the proposed curriculum change are currently available.
- Additional Library resources are needed but can be obtained from current funds.
- Support, but significant additional Library funds/resources are required in the amount of \$_____.
- Does not support the proposal for reasons listed below.

Comment regarding the impact this proposal will have on library resources, collection development, programs, etc. Use additional pages if necessary.

NEW COURSE INFORMATION FORM

Limit to Two Pages Please

Course Identification:

Prefix: Number Title
BIOL 476 Advanced Techniques in Biotechnology

Course Description:

In this course students will gain practical experience required for conducting animal-based research including the appropriate and humane handling of laboratory animals. In addition each student will: 1) develop and present a research protocol that involves the use of animals, 2) use immunological and other laboratory techniques to test hypotheses, 3) assess proper laboratory design and safety, 4) establish a primary cell culture, and 5) maintain a laboratory notebook.

Course Outcomes and Assessment Plan:

Upon completion of this course the student will have:

1. Gained an appreciation of the importance of appropriate animal care in research and come to understand the role of an institutional animal care and use committee (IACUC).
2. Obtained FSU IACUC certification for handling most of the animals managed by the FSU Animal Care Facility.
3. Immunized and collected blood from rabbits.
4. Immunized mice, harvested lymphocytes from immunized mice, and initiated a primary cell culture of the lymphocytes.
5. Performed a variety of immunological procedures including: immunodiffusion, immunoelectrophoresis, enzyme-linked immunosorbant assay, affinity chromatography, and blood typing.
6. Maintained a laboratory notebook that includes appropriately collected, analyzed, and interpreted data.
7. Developed and orally presented a research protocol that meets IACUC animal care guidelines.

Course outcomes will be assessed by: Observation and evaluation of performance in the laboratory and in the animal care facility will be in accordance with clearly stated performance criteria.

Assessment of the research protocol and its presentation will be based upon the extent to which each meets clearly stated criteria.

Assessment of the laboratory notebook will be based upon the extent to which it meets clearly stated criteria for its format and content entries.

Assessment of the acquisition of factual information will be through quizzes and exams that will be a combination of multiple choice, short answer, and essay questions as well as through a comprehensive final exam (also a combination of question types).

Course Outline including Time Allocation: Thursday 2:00pm-2:50pm Lecture, 3:00pm-4:50pm Lab

<i>Date</i>	<i>Description</i>
9/2	Introduction, Vocabulary List, History of Animal Research, Animal Care Rules and Regulations, FSU IACUC Certification Testing
9/9	FSU IACUC Certification & Testing, cont'd; Animal Care Resources, Protocol Development, Lab Safety, Zoonosis, Drug Dosage Calculations
9/16	Animal Handling Instructions, Hands-on Handling of Rats, Mice, and Rabbits; Blood Collection from Pre-booster Immunization Rabbits, FerrisConnect Access to <i>Immunology Assessment</i>

9/23	Animal Rights Activism, Animal Welfare and Husbandry, Careers in Animal Research, Animal Handling “Mid-term” Test Study Guide, Animal Handling Instructions, Hands-on Handling of Frogs, Turtles, and Pigeons
9/30	“Mid-term” Animal Handling Test, <i>Immunology Assessment</i> Due, Booster Immunization of Rabbits (Intramuscular), Receive Animal Use Protocol Rubrics
10/7	Immunology Review (Antibodies, Antigens, and Adjuvants), Introduction to Cell Culture,
10/14	Quiz #1, Sheep Red Blood Cell (SRBC) Preparation for Murine Immunization Murine Immunization with SRBC, Post-booster Rabbit Blood Collection
10/21	Quiz #2, Murine Splenectomies, Viable Cell Counting, Primary Cell Culture I
10/28	Quiz #3, Primary Cell Culture II, Immunoprecipitation (Assay of Pre- and Post-booster Rabbit Sera), Immunodiffusion, [Sign-up for Monday, 11/1 follow-ups]
11/4	Quiz #4, Draft of Animal Use Protocol Due, Hemagglutination, Immunoelectrophoresis (IEP) [Sign-up for Monday, 11/8 follow-up], Cell Culture Lab Redesign Rubrics
11/11	Quiz #5, Cell Culture Lab Redesign Due, Blood Typing, Staphylococcus Latex Test, Western Blot
11/18	Quiz #6, Western Blot Follow-up, Bacteriophage Neutralization I
11/25	NO CLASS – THANKSGIVING RECESS
12/2	Quiz # 7, Final Animal Use Protocol Due, Bacteriophage Neutralization II, Enzyme-linked Immunosorbant Assay (ELISA) I
12/9	Quiz # 8, ELISA II, Animal Protocol Presentations
Wk of 12/13	Comprehensive Final Exam

CREATE NEW COURSE
Course Data Entry Form

FORM F

Create New Course
Rev. 07/23/07

I. ACTION TO BE TAKEN: CREATE A NEW COURSE

Notes

1. Complete each item in Section I and Section II.
2. If this course is to be used as a prerequisite for other university courses, Form Fs that reflect the prerequisite change must be submitted for those courses as well.

Term Effective (6 digit code only): 201008 Examples: 200801(Spring), 200805(Summer), 200808(Fall)

Note: The first four digits indicate year, the next two digits indicate month in which term begins.

II. PROPOSED FOR NEW COURSE: Complete all sections a through r. See manual for clarification.

a. Course Prefix

BIOL

b. Number

476

c. Enter Contact Hours per week in boxes.

LECture 1

LAB 2

INDEpendent Study – Check (x)

Practicum:

Seminar:

d. Course Title: Adv. Techniques in Biotechnology (Limit to 30 characters/spaces.)

e. College Code: AS

f. Department Code: BIOL

Credit Hours: Check (x) type and enter maximum and minimum hours in boxes.

g. Type: Variable x Fixed h. Minimum Credit Hours 2 i. Maximum Credit Hours 2

j. May Be Repeated for Added Credit: Check (x) Yes x No

k. Levels: Check (x) x Undergraduate Graduate Professional

l. Grade Method: Check (x) x Normal Grading Credit/No Credit only (Pass/Fail)

m. Does proposed new course replace an equivalent course? Check () Yes No

n. Equivalent course: Prefix Number See instructions on Replacement courses.

o. **CATALOG DESCRIPTION** – Limit to 75 words – PLEASE BE CONCISE.

In this course students will gain practical experience required for conducting animal-based research including the appropriate and humane handling of laboratory animals. In addition each student will:
1) develop and present a research protocol that involves the use of animals, 2) use immunological and other laboratory techniques to test hypotheses, 3) assess proper laboratory design and safety, 4) establish a primary cell culture, and 5) maintain a laboratory notebook.


p. Term(s) Offered: Fall (See instructions for listing.) q. Max. Section Enrollment: 13

r. Prerequisites/Co-requisites/Restrictions: (If none, leave blank.) Limited to 100 spaces. Earned grade of C- or higher in both BIOL 386 and CHEM 333

UCC Chair Signature/Date:

 2/24/10

Academic Affairs Approval Signature/Date:

 2/18/10

To be completed by Academic Affairs Office: - Standard & Measures Coding and General Education Code

Basic Skill (BS) General Education (GE) Occupational Education (OC) G.E. Codes

Office of the Registrar use ONLY

Date Rec'd: ___ Date Completed: ___ Entered: SCACRSE __ SCADETL __ SCARRES __ SCAPREQ __

DELETE COURSE
Course Data Entry Form

FORM F

Delete Course
Rev. 7/23/07

I. ACTION TO BE TAKEN: DELETE COURSE FROM CATALOG.

Note: Complete each section.

The course described below will be moved to inactive status.

a. Term Effective: Term Year See instructions.

II. CURRENT COURSE TO BE DELETED FROM THE ACTIVE STATUS:

Include the information that is in the current course database.

a. Course Prefix

b. Number

c. Enter Contact Hours per week in boxes.

LECTure

LAB

INDEpendent Study – Check (x)

Practicum:

Seminar:

d. Full Course Title: Advanced Immunology Lab

UCC Chair Signature/Date:



2/24/10

Academic Affairs Approval Signature/Date:

1/1

Office of the Registrar use ONLY

Date Rec'd: ___ Date Completed: ___ Entered: SCACRSE ___ SCADETL ___ SCARRES ___ SCAPREQ ___