COURSE CHANGE FORM

Signature Routing Log

General Information:

Course Prefix and Number: BIO 315

Proposal Contact Person Name: Ruth E. Beattie Phone: 257-7647 Email: rebeat1@uky.edu

INSTRUCTIONS:

Identify the groups or individuals reviewing the proposal; note the date of approval; offer a contact person for each entry; and obtain signature of person authorized to report approval.

Internal College Approvals and Course Cross-listing Approvals:

Reviewing Group	Date Approved	Contact Person (name/phone/email)	Signature
Biology Faculty	04.10.09	Dr. Vincent Cassone, Chair / 257-6766 / vincent.cassone@uky.edu	
		/ /	
		/ /	
A&S EPC	10/5/10	ganpathy murthy 7/4729/ ganpathy murthy@uky.edu	
A&S Dean	10/5/10	agna Bosch 7/6689/ bosch@uky.edu	

External-to-College Approvals:

Council	Date Approved	Signature	Approval of Revision[8]
Undergraduate Council	11/09/2010	Sharon Gill Digitally signed by Sharon Gill DN: cn=Sharon Gill, o=Undergraduate Education, ou=Undergraduate Council, email=sgill@uky.edu, c=US Date: 2010.11.11 09:07:59 -05'00'	
Graduate Council			
Health Care Colleges Council			
Senate Council Approval		University Senate Approval	

Comments:

[8] Councils use this space to indicate approval of revisions made subsequent to that council's approval, if deemed necessary by the revising council.

COURSE CHANGE FORM

Complete 1a – 1f & 2a – 2c. Fill out the remainder of the form as applicable for items being changed.

1. General Information.

a. Submitted by the College of: A &S Today's Date: Sep 3, 2010

b. Department/Division: Biology

c. Is there a change in "ownership" of the course? YES ☐ NO ☒

If YES, what college/department will offer the course instead? _____

d. What type of change is being proposed? ☒ Major ☐ Minor[1] (place cursor here for minor change definition)

e. Contact Person Name: Ruth E. Beattie Email: rebeat1@uky.edu Phone: 257-7647

f. Requested Effective Date: ☐ Semester Following Approval OR ☒ Specific Term[2]: Fall 2011

2. Designation and Description of Proposed Course.

a. **Current Prefix and Number:** BIO 315 *Proposed Prefix & Number:* *Same*

b. **Full Title:** Introduction to Cell Biology *Proposed Title:* *same*

c. **Current Transcript Title** (if full title is more than 40 characters): n/a

Proposed Transcript Title (if full title is more than 40 characters): *n/a*

d. **Current Cross-listing:** ☒ N/A OR Currently[3] Cross-listed with (Prefix & Number): _____

Proposed – ☐ *ADD[3] Cross-listing (Prefix & Number):* _____

Proposed – ☐ *REMOVE[3,4] Cross-listing (Prefix & Number):* _____

e. **Courses must be described by at least one of the meeting patterns below. Include number of actual contact hours[5] for each meeting pattern type.**

Current: 3 Lecture _____ Laboratory[5] _____ Recitation _____ Discussion _____ Indep. Study
_____ Clinical _____ Colloquium _____ Practicum _____ Research _____ Residency
_____ Seminar _____ Studio _____ Other – Please explain: _____

Proposed: *3 Lecture* *3 Laboratory* _____ *Recitation* _____ *Discussion* _____ *Indep. Study*
_____ *Clinical* _____ *Colloquium* _____ *Practicum* _____ *Research* _____ *Residency*
_____ *Seminar* _____ *Studio* _____ *Other – Please explain:* _____

f. **Current Grading System:** ☒ Letter (A, B, C, etc.) ☐ Pass/Fail

Proposed Grading System: ☒ *Letter (A, B, C, etc.)* ☐ *Pass/Fail*

g. **Current number of credit hours:** 3 *Proposed number of credit hours:* *4*

h. **Currently, is this course repeatable for additional credit?** YES ☐ NO ☒

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[1] See comment description regarding minor course change. *Minor changes are sent directly from dean's office to Senate Council Chair.* If Chair deems the change as "not minor," the form will be sent to appropriate academic Council for normal processing and contact person is informed.

[2] Courses are typically made effective for the semester following approval. No course will be made effective until all approvals are received.

[3] Signature of the chair of the cross-listing department is required on the Signature Routing Log.

[4] Removing a cross-listing does not drop the other course – it merely unlinks the two courses.

[5] Generally, undergrad courses are developed such that one semester hr of credit represents 1 hr of classroom meeting per wk for a semester, exclusive of any lab meeting. Lab meeting generally represents at least two hrs per wk for a semester for 1 credit hour. (See *SR 5.2.1.*)

COURSE CHANGE FORM

Proposed to be repeatable for additional credit? YES ☐ NO ☒

If YES: Maximum number of credit hours: _____

If YES: Will this course allow multiple registrations during the same semester? YES ☐ NO ☐

i. **Current Course Description for Bulletin:** The structure and function of the cells will be considered. Emphasis will be placed on the ultrastructure of cell organelles in plants and animals as a framework for understanding the compartmentalized nature of cell activity.

Proposed Course Description for Bulletin: *The structure and function of cells will be considered. Emphasis will be placed on the ultrastructure of cell organelles in plants and animals as a framework for understanding the compartmentalized nature of cell activity.Lecture, 3 hours, laboratory 3 hours/weekly*

j. **Current Prerequisites, if any:** BIO 150, BIO 151, BIO 152, BIO 153 (or equivalent). Coreq. CHE 230 or equivalent.

Proposed Prerequisites, if any: *BIO 303 and BIO 304, Coreq. CHE 230 or equivalent. Or consent of instructor.*

k. Current Distance Learning(DL) Status: ☒ N/A ☐ Already approved for DL* ☐ *Please Add*[6] ☐ *Please Drop*

*If already approved for DL, the Distance Learning Form must also be submitted unless the department affirms (by checking this box ☐) that the proposed changes do not affect DL delivery.

l. **Current Supplementary Teaching Component, if any:** ☐ Community-Based Experience ☐ Service Learning ☐ Both

Proposed Supplementary Teaching Component: ☐ *Community-Based Experience* ☐ *Service Learning* ☐ *Both*

3. **Currently, is this course taught off campus?** YES ☐ NO ☒

Proposed to be taught off campus? YES ☐ NO ☒

4. **Are significant changes in content/teaching objectives of the course being proposed?** YES ☒ NO ☐

If YES, explain and offer brief rationale:

The course will include an embedded laboratory experince. This revision was made as a result of a comprehensive review and revison of the current biology undergraduate program and also in response to feedback on the most recent Departmental review. The inclusion of the laboratory component will enhance the current course. Students will develop practical laboratory skills and will apply those skills to knowledge learned in the classroom to address a biological problem.

5. **Course Relationship to Program(s).**

a. **Are there other depts and/or pgms that could be affected by the proposed change?** YES ☒ NO ☐

If YES, identify the depts. and/or pgms: *B.S in Secondary Education, Biology option - BIO 315 is a recommended but not required course. The College of Education has indicated that this change will not negatively impact their program.*
B.S. in Agricultural Biotechnology - BIO 315 is an option in the speciality support area. The Agriculture Biotechnology program is very supportive of this change.

b. **Will modifying this course result in a new requirement[7] for ANY program?** YES ☐ NO ☒

If YES[7], list the program(s) here: _____

[6] You must *also* submit the Distance Learning Form in order for the course to be considered for DL delivery.

[7] In order to change a program, a program change form must also be submitted.

COURSE CHANGE FORM

6. Information to be Placed on Syllabus.

a. ☐ Check box if changed to 400G or 500.

If changed to 400G- or 500-level course you must send in a syllabus and *you must include the differentiation* between undergraduate and graduate students by: (i) requiring additional assignments by the graduate students; and/or (ii) establishing different grading criteria in the course for graduate students. (See *SR 3.1.4.*)

University Senate Syllabi Guidelines

BIO 315

General Course Information

- [x] Full and accurate title of the course.
- [x] Departmental and college prefix.
- [x] Course prefix, number and section number.
- [x] Scheduled meeting day(s), time and place.

Instructor Contact Information (if specific details are unknown, "TBA" is acceptable for one or more fields)

- [x] Instructor name.
- [x] Contact information for teaching/graduate assistant, etc. NA
- [x] Preferred method for reaching instructor.
- [x] Office phone number.
- [x] Office address.
- [x] UK email address.
- [x] Times of regularly scheduled office hours and if prior appointment is required.

Course Description

- [x] Reasonably detailed overview of the course.
- [x] Student learning outcomes.
- [x] Course goals/objectives.
- [x] Required materials (textbook, lab materials, etc.).
- [x] Outline of the content, which must conform to the Bulletin description.
- [x] Summary description of the components that contribute to the determination of course grade.
- [x] Tentative course schedule that clarifies topics, specifies assignment due dates, examination date(s).
- [x] Final examination information: date, time, duration and location.
- [x] For 100-, 200-, 300-, 400-, 400G- and 500-level courses, numerical grading scale and relationship to letter grades for *undergraduate* students.
- [ ] NA For 400G-, 500-, 600- and 700-level courses, numerical grading scale and relationship to letter grades for *graduate* students. (Graduate students cannot receive a "D" grade.)
- [x] Relative value given to each activity in the calculation of course grades (Midterm=30%; Term Project=20%, etc.).
- [x] Note that undergraduate students will be provided with a Midterm Evaluation (by the midterm date) of course performance based on criteria in syllabus.
- [x] Policy on academic accommodations due to disability. Standard language is below:

  If you have a documented disability that requires academic accommodations, please see me as soon as possible during scheduled office hours. In order to receive accommodations in this course, you must provide me with a Letter of Accommodation from the Disability Resource Center (Room 2, Alumni Gym, 257-2754, email address jkarnes@email.uky.edu) for coordination of campus disability services available to students with disabilities.

Course Policies

- [x] Attendance.
- [x] Excused absences.
- [x] Make-up opportunities.
- [x] Verification of absences.
- [x] Submission of assignments.
- [x] Academic integrity, cheating & plagiarism.
- [x] Classroom behavior, decorum and civility.
- [ ] NA Professional preparations.
- [ ] NA Group work & student collaboration.

BIO 315 – 001 Introduction to Cell Biology
Dept of Biology
College of Arts and Sciences

Class: 10:00-10:50 Monday, Wednesday and Friday BS 116

Instructor: S. Steiner
Office: BS 319A
Telephone: 257-3870
e-mail: shellys@uky.edu - I will try to respond to any questions by e-mail in a timely manner. Preferred method of contact.

TA: TBA

Office Hours: I will meet with you whenever you need help and the times for the meetings can be arranged by e-mail, or before or after class. In addition, I will be available after each lecture.

Text: Cell and Molecular Biology- concepts and experiments –6th edition ed. -Gerald Karp

Course Description:
The structure and function of cells will be considered. Emphasis will be placed on the ultrastructure of cell organelles in plants and animals as a framework for understanding the compartmentalized nature of cell activity.Lecture, 3 hours, laboratory 3 hours/weekly

Course overview and objectives

Lecture: To familiarize upper level students to the fundamental principles of eukaryotic cell biology at the molecular and cytological level with particular emphasis on biochemical and cytological approaches and mechanisms. The subjects to be mastered include: structure and function of the plasma membrane, transport of small molecules, ions and macromolecular complexes across membranes, protein trafficking, the cytoskeleton, signal transduction pathways, and the control of cell division and cellular proliferation.

Lab: The laboratory component of this course is designed to give upper division majors an opportunity to learn modern techniques used in cell biology research . Students will master the fundamentals of microscopy (e.g., light, fluorescent, confocal). Students will isolate various subcellular components, e.g., nuclei, mitochondria, lysosomes, and will characterize these organelles by microscopy, enzyme assays, protein gels and antibody labeling. Additional cell structure (cytoskeletal elements) and function (mitosis) will be explored.

Learning Outcomes;
Students will be able to:
1) Demonstrate an understanding of basic cell structure at molecular levels;
2) Describe the structure of cell components and relate that structure to their functions and to cellular activities as a whole, and demonstrate how cell fractionation is used to isolate these components ;
3) Describe the processes involved in cell division;
4) Describe how cells obtain energy, and how they use energy for driving reactions within the cell;
5) Demonstrate a range of appropriate and relevant experimental techniques and how they are used;
6) Conduct an experiment accurately, report and interpret the results in an appropriate manner.

Attendance:
Web site:
http://www.as.uky.edu/academics/departments_programs/Biology/Biology/faculty_research/faculty/steiner
Prior to lecture I will post a preliminary copy of the lecture notes. These notes will lack the news articles that I present each lecture and any updating that I do just before lecture. Before each examination I will post a final version of the notes
A significant amount of the lecture material will be taken from current articles in journals, newspapers, and magazines and therefore will not be in the text. Additionally, during the lecture several topics from the notes will be elaborated upon and at least 5 questions per exam will come from the elaborated topics (the material will not necessarily be explicitly in the notes). I have done this in the past and during the exams student who do not attend lecture wonder about the basis for some of the questions. Consequently, class attendance is highly recommended

Grades:
Grades will be based on your performance on the following activities:

Lecture:

EXAM 1 =	100 PTS
EXAM 2 =	100 PTS
EXAM 3 (FINAL) =	100 PTS

Each exam is worth 33% of the lecture component of your grade grade; the class mean for each exam will be adjusted upward to 72% if needed.
Although each examination will only cover the lecture material for that segment of the course you are responsible for the relevant material covered in earlier lectures (that is, much of the material in later chapters depends on material in earlier chapters).

Laboratory: You will be required to submit a written report of each of the laboratory activities ,II - X listed in the laboratory schedule. Each report is due the class period

immediately following the completion of the laboratory exercise. Details on the format for each report will be given in lab. This component of your grade will be worth 100 points.

Final grades will be based on the combination of your lecture and laboratory scores and will be determined as follows:

100-90 = A; 89-80 = B; 79-70 = C; 69-60 = D; <60 = E.

Examination schedule:

Examination 1: October 1
Examination 2: November 5
Examination 3: December 15th- 8:00 a.m.

Midterm Grades will be available by October 4, 2010 and are based on the grading scheme detailed above.

Individuals that miss an examination will be given a zero unless they have an official excuse. Individuals who will miss an examination because of an official school function (members of the band, debate team, and religious holiday) should contact the instructor immediately before the examination date in order to schedule a make-up. Those missing an examination because of illness should contact the instructor immediately after the examination date or as soon as possible to schedule a make-up examination.

UNIVERSITY POLICY ON EXCUSED AND UNEXCUSED ABSENCES
The following are acceptable reasons for excused absences:
1. serious illness of student (doctor's note required)
2. illness or death of family member (doctor's note required)
3. University - related trips (such as to a football game for a team member or band member, official note required)
4. Major religious holidays. Students MUST notify instructor IN WRITING of all such holidays to assure being excused.

ABSENCE FROM LABORATORY, MISSED REPORTS
If you miss a laboratory meeting, or fail to hand in a lab report you will lose the points associated with these. If you want credit for these omissions, you must contact your TA within three calendar days of the omission and present your TA with a doctor's note also within 3 calendar days of the omission.

Disabilities: If you have a documented disability that requires academic accommodations, please see me as soon as possible during scheduled office hours. In order to receive accommodations in this course, you must provide me with a Letter of Accommodation from the Disability Resource Center (Room 2, Alumni Gym, 257-2754, email address (jkarnes@email.uky.edu) for coordination of campus disability services available to students with disabilities.

Course Policy on Classroom Civility and Decorum:

The university, college and department all have a commitment to respect the dignity of all and to value differences among members of our academic community. There exists the role of discussion and debate in academic discovery and the right of all to respectfully disagree from time-to-time. Students clearly have the right to take reasoned exception and to voice opinions contrary to those offered by the instructor and/or other students (S.R. 6.1.2). Equally, a faculty member has the right -- and the responsibility -- to ensure that all academic discourse occurs in a context characterized by respect and civility. Obviously, the accepted level of civility would not include attacks of a personal nature or statements denigrating another on the basis of race, sex, religion, sexual orientation, age, national/regional origin or other such irrelevant factors.

Academic Offenses

PLAGIARISM and CHEATING are serious academic offenses.

The following is an excerpt taken from the "***Students Rights and Responsibilities Handbook, University of Kentucky***" regarding cheating.

"Cheating is defined by its general usage. It includes, but is not limited to, the wrongful giving, taking, or presenting any information or material by a student with the intent of aiding himself/herself or another on any academic work which is considered in any way in the determination of the final grade."

The following is an excerpt taken from the "***Students Rights and Responsibilities Handbook, University of Kentucky***" regarding plagiarism.

"All academic work, written or otherwise, submitted by students to their instructors or other academic supervisors, is expected to be the result of their own thought, research, or self-expression.

When students submit work purporting to be their own, but which in any way borrows ideas, organization, wording or anything else from another source without appropriate acknowledgment of the fact, the students are guilty of plagiarism.
Plagiarism includes reproducing someone else's work..... If the words of someone else are used, the student MUST put quotation marks around the passage in question and add an appropriate indication of its origin. Making simple changes while leaving the organization, content and phraseology intact is plagiaristic."

Charges of an academic offense will be made against any student that cheats or commits plagiarism. Penalties for such an offense will be assessed according to University Regulations regarding Academic Offenses. The most severe penalties include suspension or dismissal from the University. **I have a zero-tolerance policy regarding academic offenses.**

Outline of Course Content

Lecture Schedule

Topics	Reading
Introduction to the study of cell and molecular biology	Chapter 1
The chemical basis of life	Chapter 2
Bioenergetics, enzymes and metabolism	Chapter 3
The structure and function of the plasma membrane	Chapter 4
Cell signaling and signal transduction: communication between cells	Chapter 15
Aerobic respiration and the mitochondrion	Chapter 5
Interactions between cells and their environment	Chapter 7
Cytoplasmic membrane systems: structure, function and membrane trafficking	Chapter 8
The cytoskeleton and cell motility	Chapter 9
The nature of the gene and the genome	Chapter 10
Gene Expression: From transcription to translation	Chapter 11
The cell nucleus and the control of gene expression	Chapter 12
DNA replication and repair	Chapter 13
Cellular reproduction	Chapter 14
Cancer	Chapter 16
Techniques in cell and molecular biology	Chapter 18

Laboratory Content / Schedule:

I. Microscopy
   a. light microscopy
   b. fluorescent microscopy
   c. confocal microscopy

II. Subcellular fractionation- chicken liver (total of 3 weeks-exercises II, III, IV)

III. A Purfication of mitochondria by differential sedimentation and monitoring of cell fractions for specific activity of succinate dehydrogenase.

IV. Enzymology laboratory- Learn the basics of enzymological assays.

V. Western blot analysis coupled with microscopy- apoptotic versus non-apoptotic (total of 2 weeks)

VI. *In Vivo* Visualization of subcellular components by microscopy (confocal) (total of 3 weeks- VI, VII)

VII. Studies of the cytoskeletal system
   a. tubulin (immunostaining and *in vitro* assembly)
   b. actin (immunostaining and *in vitro* assembly)
   c. GFP- tubulin (*in vivo* labeling in Drosophila embryo)

VIII. Early embryo development and regeneration with Axolotl – total of 3 weeks

IX. Studies of nuclear and chromosome structure and histone modifications

X. Mitosis/meiosis- onion root tip and *in vivo* tubulin-GFP labeling in Drosophila cell cycle mutants. (total of 2 weeks)