New Course Request

Indiana University

Check Appropriate Boxes: Undergraduate credit [X] Graduate credit [ ] Professional credit [ ]

1. School/Division: Natural Science & Math
2. Academic Subject Code: BIOL

3. Course Number: L327
4. Instructor: Kim Green

5. Course Title: Cell and Tissue Culture

Recommended Abbreviation (Optional): (Limited to 32 Characters including spaces)

6. First time this course is to be offered (Semester/Year): Fall 2011

7. Credit Hours: Fixed at [ ] 3 [ ] or Variable from [ ] to [ ]

8. Is this course to be graded S-F (only)? Yes ___ No ___

9. Is variable title approval being requested? Yes ___ No ___

10. Course description (not to exceed 50 words) for Bulletin publication: See attached documents

11. Lecture Contact Hours: Fixed at [ ] 3 [ ] hours or Variable from [ ] to [ ]

12. Non-Lecture Contact Hours: Fixed at [ ] or Variable from [ ] to [ ]

13. Estimated enrollment: [ ] 24 of which [ ] percent are expected to be graduate students.

14. Frequency of scheduling: Once/Year

15. Will this course be required for majors? ___ NO ___

16. Justification for new course: Part of BS Biochemistry degree

17. Are the necessary reading materials currently available in the appropriate library? ___ YES ___

18. Please append a complete outline of the proposed course, and indicate instructor (if known), textbooks, and other materials. See attached documents

19. If this course overlaps with existing courses, please explain with which courses it overlaps and whether this overlap is necessary, desirable, or unimportant. NO OVERLAP

A copy of every new course proposal must be submitted to departments, schools, or divisions in which there may be overlap of the new course with existing courses or areas of strong concern, with instructions that they send comments directly to the originating Curriculum Committee. Please append a list of departments, schools, or divisions thus consulted.

Submitted by: [Signature] [Date: 03/17/20]

Department Chairman/Division Director

Dean of Graduate School (when required)

Approved by: [Signature] [Date: 01/13/10]

Dean

Chancellor/Vice-President

University Enrollment Services

After School/Division approval, forward the last copy (without attachments) to University Enrollment Services for initial processing, and the remaining four copies and attachments to the Campus Chancellor or Vice-President.

UPS 724

University Enrollment Services Final—White; Chancellor/Vice-President—Blue; School/Division—Yellow; Department/Division—Pink; University Enrollment Services Advance—White
Cell and Tissue Culture
BIOL-L-327

10. Course Description- (50 words)

Study the basic lab setup and procedures, learning specialized techniques like cryopreservation, haemocytometer cell counts and viability studies, prophylactic use of antibodies in cultures, enzymic techniques for tissue dissociation, routine subculturing, Mycoplasma – detection techniques, elimination of contamination, removal of fibroblasts, cell characterization and analysis, cell line derivation methods, explant cultures and clinical application of cultured cells.

Prerequisites – BIOL-L101 or 102 is a prerequisite for this course or one semester of college level introductory biology course.

15. Justification of new course-

a) These topics are not included in any course currently being offered at IU East.
b) Component for upcoming BS in Biochemistry degree.
c) Expansion in offerings for BS Biology in School of Natural Science and Mathematics.

18. Does this course overlap with existing courses?

No overlap with courses currently offered at IU East.
COURSE TITLE: Cell and Tissue Culture

COURSE NUMBER: BIOL-L-327

CREDIT HOURS: 3

SCHOOL: NSM

PROGRAM: To be offered as an elective for existing BS degrees and upcoming BS Biochemistry degree.

COURSE CATALOG DESCRIPTION: Cell and Tissue Culture will be taught as a classroom course and will be offered in fall semester. The course is designed to educate students about the basics of cell and tissue culture techniques. Students will learn about basic lab techniques, cryopreservation, cell lineages and maintenance of cell and tissue cultures under sterile conditions.

PREREQUISITES: BIOL-L-101 or 102

ANTICIPATED CLASS FORMAT (Online, Classroom, Hybrid): Classroom

CONTACT TYPE (Lecture, Lab, Other): Lecture and lab

TEXTBOOK(S) FOR FIRST OFFERING:
Cell and Tissue Culture for Medical Research by Doyle and Griffiths

TOPICS TO BE ADDRESSED: (Narrative and/or bullet points)
- In this course we will attempt to broadly cover the following topics -
  1. Basic lab setup and procedures
  2. Cryopreservation
  3. Haemocytometer cell counts and viability studies
  4. Prophylactic use of antibodies in cultures
  5. Enzymatic techniques for tissue dissociation
  6. Routine subculturing
  7. Mycoplasma – detection techniques
  8. Elimination of contamination
  9. Removal of fibroblasts
  10. Cell characterization and analysis
11. Cell line derivation methods
12. Explant cultures
13. Clinical application of cultured cells

IU EAST CAMPUS LEARNING OBJECTIVES:

Educated people should:
1. Be exposed to a broad variety of academic fields traditionally known as the Liberal Arts (humanities, fine arts, social sciences, natural sciences) in order to develop a critical appreciation of a diversity of ideas and creative expression.
2. Have achieved depth in some field of knowledge. A sequential accumulation of knowledge and skills in an academic discipline is essential for a focused personal and professional development.
3. Be able to express themselves clearly, completely, and accurately. Effective communication entails the successful sharing through a wide variety of techniques, including reading, writing, speaking and technology.
4. Be able to relate computational skills to all fields so that they are able to think with numbers. At minimum students should be able to carry out basic arithmetical and algebraic functions; they should have a working concept of simple statistics; and they should be able to interpret and use data in various forms.
5. Have the ability to develop informed opinions, to comprehend, formulate, and critically evaluate ideas, and to identify problems and find solutions to those problems. Effective problem solving involves a variety of skills including research, analysis, interpretation and creativity.
6. Develop the skills to understand, accept and relate to people of different backgrounds and beliefs. In a pluralistic world one should not be provincial or ignorant of other cultures; one's life is experienced within the context of other races, religions, languages, nationalities and value systems.
7. Be expected to have some understanding of and experience in thinking about moral and ethical problems. A significant quality in educated persons is the ability to question and clarify personal and cultural values, and thus to be able to make discriminating moral and ethical choices.

LIST COURSE OBJECTIVES (with a notation indicating which Campus Learning Objective is met.)

- Students are educated about cell and tissue culture techniques. This course provides them in depth knowledge sterile culture techniques. This meets campus learning objective number 2 as mentioned above.
- In this course students will be able to critically evaluate scientific ideas, develop informed opinions, identify problems and find solutions to those problems. This satisfies criteria number 5 of the campus learning objectives.
- Students will be able to take an informed decision on several burning issues like stem cell techniques after taking this course. This satisfies campus learning objective number 7 as mentioned above.

DATE OF COURSE IMPLEMENTATION: Fall 2011

DATE OF LAST REVISION (IF ANY):

Actual Course Syllabus May Contain Additional Materials
Cell and Tissue Culture
BIOL-L-327

Instructor: Dr. Kimberly A. Greer
Office: WZ252
Phone: 765-973-8445
E-mail: kagreer@indiana.edu

- Cell and tissue culture is lecture and lab course combined into one.
- Cell and tissue culture may be taught as an online course (lecture component only) and will be offered in Fall semester 2011. BIOL-L101 or 102 is a prerequisite for this course. Book required is-
  Cell and Tissue Culture for Medical Research by Doyle and Griffiths
  Wiley Publishers

- In this course we will attempt to broadly cover the following topics -

  14. Basic lab setup and procedures
  15. Cryopreservation
  16. Haemocytometer cell counts and viability studies
  17. Prophylactic use of antibodies in cultures
  18. Enzymic techniques for tissue dissociation
  19. Routine subculturing
  20. Mycoplasma – detection techniques
  21. Elimination of contamination
  22. Removal of fibroblasts
  23. Cell characterization and analysis
  24. Cell line derivation methods
  25. Explant cultures
  26. Clinical application of cultured cells

Outline of activities:

1. Cell and tissue culture may be taught as an online course (lecture component only) or as a traditional lecture class.
2. In an online class lecture slides are posted online every Friday on Oncourse as Power point, Adobe presenter or pdf files.

3. Links to important websites and videos are being provided as well. This addresses the needs of visual and auditory learners.

4. Some of the slides may have a recorded narration in an attempt to simulate class room conditions.

5. All students have to participate in a forum section. Publications from peer reviewed scientific journals will be discussed in the forum section. This is an interactive way in which students can ask questions and discuss points with each other as well as with the instructor.

6. Each week students will be required to attempt a quiz for 10 points each. There will be two exams worth 100 points each during the semester. The exam will be on Oncourse and students can attempt the exam only once. Once opened the exam shall expire and auto submit after the allotted time and cannot be retaken.

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