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SEP 19 2014

OFFICE OF THE SENATE COUNCIL

1. General Information

1a. Submitted by the College of: ENGINEERING

Date Submitted: 12/6/2013

1b. Department/Division: Department of Biomedical Engineering

1c. Contact Person

Name: David Puleo

Email: puleo@uky.edu

Phone: 7-2405

Responsible Faculty ID (if different from Contact)

Name: David Puleo

Email: puleo@uky.edu

Phone: 7-2405

1d. Requested Effective Date: Semester following approval

1e. Should this course be a UK Core Course? No

2. Designation and Description of Proposed Course

2a. Will this course also be offered through Distance Learning?: No

2b. Prefix and Number: BME 395

2c. Full Title: Independent Research in Biomedical Engineering

2d. Transcript Title: Indep Res in Biomedical Engineering

2e. Cross-listing:

2f. Meeting Patterns

INDEPSTUDY: 1-3

2g. Grading System: Letter (A, B, C, etc.)

2h. Number of credit hours: 1-3

2i. Is this course repeatable for additional credit? Yes

If Yes: Maximum number of credit hours: 6

If Yes: Will this course allow multiple registrations during the same semester? No

2j. Course Description for Bulletin: Individual research on selected problems of current significance in biomedical engineering. Variable credit; may be repeated to a maximum of six credit hours. Prereq: Consent of instructor.

2k. Prerequisites, if any: Prereq: Consent of instructor.

2I. Supplementary Teaching Component:

3. Will this course taught off campus? No

If YES, enter the off campus address:

4. Frequency of Course Offering: Summer,

Will the course be offered every year?: Yes

If No, explain:

5. Are facilities and personnel necessary for the proposed new course available?: Yes

If No, explain:

6. What enrollment (per section per semester) may reasonably be expected?: 6

7. Anticipated Student Demand

Will this course serve students primarily within the degree program?: No

Will it be of interest to a significant number of students outside the degree pgm?: Yes

If Yes, explain: Biomedical Engineering (BME) does not have an undergraduate program, but students continue to express interest in attending graduate school for BME education and training. This course will allow undergraduates in other departments the opportunity to participate in BME research projects.

8. Check the category most applicable to this course: Traditional – Offered in Corresponding Departments at Universities Elsewhere,

If No, explain:

9. Course Relationship to Program(s).

a. Is this course part of a proposed new program?: No

If YES, name the proposed new program:

b. Will this course be a new requirement for ANY program?: No

If YES, list affected programs:

10. Information to be Placed on Syllabus.

a. Is the course 400G or 500?: No

b. The syllabus, including course description, student learning outcomes, and grading policies (and 400G-/500-level grading differentiation if applicable, from **10.a** above) are attached: Yes

Distance Learning Form

Instructor Name:

Instructor Email:

Internet/Web-based: No

Interactive Video: No

Hybrid: No

1.How does this course provide for timely and appropriate interaction between students and faculty and among students? Does the course syllabus conform to University Senate Syllabus Guidelines, specifically the Distance Learning Considerations?

2.How do you ensure that the experience for a DL student is comparable to that of a classroom-based student's experience? Aspects to explore: textbooks, course goals, assessment of student learning outcomes, etc.

3.How is the integrity of student work ensured? Please speak to aspects such as password-protected course portals, proctors for exams at interactive video sites; academic offense policy; etc.

4.Will offering this course via DL result in at least 25% or at least 50% (based on total credit hours required for completion) of a degree program being offered via any form of DL, as defined above?

If yes, which percentage, and which program(s)?

5.How are students taking the course via DL assured of equivalent access to student services, similar to that of a student taking the class in a traditional classroom setting?

6.How do course requirements ensure that students make appropriate use of learning resources?

7.Please explain specifically how access is provided to laboratories, facilities, and equipment appropriate to the course or program.

8.How are students informed of procedures for resolving technical complaints? Does the syllabus list the entities available to offer technical help with the delivery and/or receipt of the course, such as the Information Technology Customer Service Center (http://www.uky.edu/UKIT/)?

9.Will the course be delivered via services available through the Distance Learning Program (DLP) and the Academic Technology Group (ATL)? NO

If no, explain how student enrolled in DL courses are able to use the technology employed, as well as how students will be provided with assistance in using said technology.

10.Does the syllabus contain all the required components? NO

11.I, the instructor of record, have read and understood all of the university-level statements regarding DL.

Instructor Name:

SIGNATURE|CHE202|Kimberly W Anderson|BME 395 NEW College Review|20140213

SIGNATURE|JMETT2|Joanie Ett-Mims|BME 395 NEW Undergrad Council Review|20140919

Courses | Request Tracking

New Course Form

https://myuk.uky.edu/sap/bc/soap/rfc?services=

Open in full window to print or save

Attachments:

Browse... No file selected.

	ID	Attachment
Delete	3474	BME 395 syllabus - revMay2014.pdf
Delete	3475	BME 395 Research Contract.pdf

First | 1 Last

Select saved project to retrieve...

(*denotes required fields)

1. General Information

a. * Submitted by the College of: ENGINEERING Submission Date: 12/6/2013

b. * Department/Division: Department of Biomedical Engineering

c.
* Contact Person Name: David Puleo Email: puleo@uky.edu Phone: 7-2405
* Responsible Faculty ID (if different from Contact) David Puleo Email: puleo@uky.edu Phone: 7-2405

d. * Requested Effective Date: ◉ Semester following approval OR ○ Specific Term/Year [1]

e.
Should this course be a UK Core Course? ○ Yes ◉ No

If YES, check the areas that apply:

☐ Inquiry - Arts & Creativity	☐ Composition & Communications - II
☐ Inquiry - Humanities	☐ Quantitative Foundations
☐ Inquiry - Nat/Math/Phys Sci	☐ Statistical Inferential Reasoning
☐ Inquiry - Social Sciences	☐ U.S. Citizenship, Community, Diversity
☐ Composition & Communications - I	☐ Global Dynamics

2. Designation and Description of Proposed Course.

a. * Will this course also be offered through Distance Learning? ○ Yes [4] ◉ No

b. * Prefix and Number: BME 395

c. * Full Title: Independent Research in Biomedical Engineering

d. Transcript Title (if full title is more than 40 characters): Indep Res in Biomedical Engineering

e. To be Cross-Listed [2] with (Prefix and Number):

f. * Courses must be described by at least one of the meeting patterns below. Include number of actual contact hours[3] for each meeting pattern type.

	Lecture	Laboratory[1]	Recitation	Discussion
1-3	Indep. Study	Clinical	Colloquium	Practicum
	Research	Residency	Seminar	Studio
	Other	If Other, Please explain:		

g. * Identify a grading system:
◉ Letter (A, B, C, etc.)
○ Pass/Fail
○ Medicine Numeric Grade (Non-medical students will receive a letter grade)
○ Graduate School Grade Scale

h. * Number of credits: 1-3

i. * Is this course repeatable for additional credit? ◉ Yes ○ No
If YES: Maximum number of credit hours: 6
If YES: Will this course allow multiple registrations during the same semester? ○ Yes ◉ No

j. * Course Description for Bulletin:

Individual research on selected problems of current significance in biomedical engineering. Variable credit; may be repeated to a maximum of six credit hours. Prereq: Consent of instructor.

k. Prerequisites, if any:
Prereq: Consent of instructor.

l. Supplementary teaching component, if any: ○ Community-Based Experience ○ Service Learning ○ Both

3. * Will this course be taught off campus? ○ Yes ● No

If YES, enter the off campus address:

4. Frequency of Course Offering.

a. * Course will be offered (check all that apply): ☑ Fall ☑ Spring ☑ Summer ☐ Winter

b. * Will the course be offered every year? ● Yes ○ No

If No, explain:

5. * Are facilities and personnel necessary for the proposed new course available? ● Yes ○ No

If No, explain:

6. * What enrollment (per section per semester) may reasonably be expected? 6

7. Anticipated Student Demand.

a. * Will this course serve students primarily within the degree program? ○ Yes ● No

b. * Will it be of interest to a significant number of students outside the degree pgm? ● Yes ○ No

If YES, explain:
Biomedical Engineering (BME) does not have an undergraduate program, but students continue to express interest in attending graduate school for BME education and training. This course will allow undergraduates in other

8. * Check the category most applicable to this course:

☑ Traditional – Offered in Corresponding Departments at Universities Elsewhere
☐ Relatively New – Now Being Widely Established
☐ Not Yet Found in Many (or Any) Other Universities

9. Course Relationship to Program(s).

a. * Is this course part of a proposed new program? ○ Yes ● No

If YES, name the proposed new program:

b. * Will this course be a new requirement [5] for ANY program? ○ Yes ● No

If YES [5], list affected programs::

10. Information to be Placed on Syllabus.

a. * Is the course 400G or 500? ○ Yes ● No
If YES, the *differentiation for undergraduate and graduate students must be included* in the information required in **10.b**. You must include: (i) identification of additional assignments by the graduate students; and/or (ii) establishment of different grading criteria in the course for graduate students. (See SR 3.1.4.)

b. ☑ * The syllabus, including course description, student learning outcomes, and grading policies (and 400G-/500-level grading differentiation if applicable, from **10.a** above) are attached.

[1] Courses are typically made effective for the semester following approval. No course will be made effective until all approvals are received.
[2] The chair of the cross-listing department must sign off on the Signature Routing Log.
[3] In general, undergraduate courses are developed on the principle that one semester hour of credit represents one hour of classroom meeting per week for a semester, exclusive of any laboratory meeting. Laboratory meeting, generally, represents at least two hours per week for a semester for one credit hour. (from SR 5.2.1)
[4] You must also submit the Distance Learning Form in order for the proposed course to be considered for DL delivery.
[5] In order to change a program, a program change form must also be submitted.

Rev 8/09

BME 395

Independent Research in Biomedical Engineering

Fall 2014
(example)

Instructor: David Puleo, Ph.D.
Office: 209 Wenner-Gren Lab
Telephone: 257-2405
E-mail: puleo@uky.edu

Course Description

Individual research on selected problems of current significance in biomedical engineering. Variable credit; may be repeated to a maximum of six credit hours. Prereq: Consent of instructor.

Course Grade

Completion of safety training	5%
attendance in lab	15%
oral progress updates	15%
written progress reports	15%
final lab report	50%

Your faculty mentor will be responsible for evaluating reports and assigning a grade. Points in each category will be totaled and weighted as shown above to arrive at a final grade using the standard scale (A=90-100; B=80-89%; C=70-79%; D=60-69%; E=0-59%).

Learning Outcomes

After completing this course successfully, a student should be able to:

1) Perform a literature search and critically review publications
2) Design and conduct an experiment
3) Analyze experimental results
4) Prepare oral and written research reports

Attendance / Lab Schedule and Meetings

Research experiment schedules are flexible and will be determined in conjunction with your faculty and lab mentors. Weekly or biweekly meetings will be scheduled to discuss progress and troubleshoot any experimental difficulties.

Weekly Reports

Progress reports will be submitted by e-mail (as DOC and PDF) on a weekly basis. These will enable monitoring of forward progress on the project, as well as be a source of information for writing the final report.

Final Report

The final report will fully document the experimental successes of the semester. The format will be that of a standard scientific manuscript, including a cover page, abstract, introduction,

materials and methods, results, discussion, conclusion, and references (with appropriate sections and subsections).

Mid-term Grade

Mid-term grades will be posted in myUK by the deadline established in the Academic Calendar (http://www.uky.edu/Registrar/AcademicCalendar.htm).

Make-up Policy

Students who fall ill, or who know they will be missing a lab session or progress meeting for a valid reason (see Excused Absences) are encouraged to notify your mentors by phone or e-mail in advance, if at all possible. Students missing scheduled meetings without a valid excuse will receive a grade of 0 for that day. The experimental work or progress update will be rescheduled as needed.

Excused Absences

Students need to notify the professor of absences prior to class when possible. S.R. 5.2.4.2 defines the following as acceptable reasons for excused absences: (a) serious illness, (b) illness or death of family member, (c) University-related trips, (d) major religious holidays, and (e) other circumstances found to fit "reasonable cause for nonattendance" by the professor.

Students anticipating an absence for a major religious holiday are responsible for notifying the instructor in writing of anticipated absences due to their observance of such holidays no later than the last day in the semester to add a class.

Students are expected to withdraw from the class if more than 20% of the lab sessions or progress meetings scheduled for the semester are missed (excused or unexcused) per university policy.

Verification of Absences

Students may be asked to verify their absences in order for them to be considered excused. Senate Rule 5.2.4.2 states that faculty have the right to request "appropriate verification" when students claim an excused absence because of illness or death in the family. Appropriate notification of absences due to university-related trips is required prior to the absence.

Academic Integrity

Per university policy, students shall not plagiarize, cheat, or falsify or misuse academic records. Students are expected to adhere to University policy on cheating and plagiarism in all courses. The minimum penalty for a first offense is a zero on the assignment on which the offense occurred. If the offense is considered severe or the student has other academic offenses on their record, more serious penalties, up to suspension from the university may be imposed.

Plagiarism and cheating are serious breaches of academic conduct. Each student is advised to become familiar with the various forms of academic dishonesty as explained in the Code of Student Rights and Responsibilities. Complete information can be found at the following

website: http://www.uky.edu/Ombud. A plea of ignorance is not acceptable as a defense against the charge of academic dishonesty. It is important that you review this information as all ideas borrowed from others need to be properly credited.

Part II of Student Rights and Responsibilities (http://www.uky.edu/StudentAffairs/Code/part2.html) states that 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. In cases where students feel unsure about the question of plagiarism involving their own work, they are obliged to consult their instructors on the matter before submission.

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 acknowledgement of the fact, the students are guilty of plagiarism. Plagiarism includes reproducing someone else's work, whether it be a published article, chapter of a book, a paper from a friend or some file, or something similar to this. Plagiarism also includes the practice of employing or allowing another person to alter or revise the work which a student submits as his/her own, whoever that other person may be.

Students may discuss assignments among themselves or with an instructor or tutor, but when the actual work is done, it must be done by the student, and the student alone. When a student's assignment involves research in outside sources of information, the student must carefully acknowledge exactly what, where and how he/she employed them. 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 plagiarism.

Written assignments you turn in may be submitted to SafeAssign via Blackboard for comparison with a collection of other previously submitted works and those available on public web sites.

Accommodations Due to Disability

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.

BME 395 Independent Research in Biomedical Engineering

Research Contract

To receive credit for BME 395, students and their research mentors must complete a contract. If a contract is not completed **each semester** by the add/drop date, you will not be able to register for this class. If the contract is not approved, you and your research mentor will be notified.

Return the completed contract to Ms. Rebecca Hisel in 522 RMB.

Academic session in which the research will take place:

Fall ___ Spring ___ Year _____

Credit hours _____

Research mentors agree to provide lab space, lab supplies, and guidance. Guidance includes safety training as well as training in the scientific method, laboratory techniques, and presentation skills. Mentors will grade the student's independent work.

Provide the following information:

Name _____

Student ID _____

Major _____

E-Mail Address _____

Telephone Number _____

Mentor _____

E-Mail Address _____

Telephone Number _____

Your signature _____

Mentor's signature _____

This section should be filled in by the mentor. Please indicate what activities (and their weighting) will be used for determining the student's grade in the course (e.g., attendance 25%, oral reports 25%, final paper 50%, *etc.*). A research contract will not be approved if this information is missing or incomplete.

A= 90-100; B= 80-89; C=70-79; D=60-69; F= 59 and below

Attach to this form a description of the proposed research. Follow the three-point format listed below. If your project is a continuation from a previous semester of BME 395, you should provide a short description of the results of the previous semester's work and indicate that it is a continuation. **Complete this section in consultation with your mentor.**

1. State your hypothesis or design-driven principle.
2. Briefly describe the types of experiments you intend to perform, including brief technical details.
3. What might the results of these experiments be, and how could these results support or refute your hypothesis?