# Proposal Form For Addition And Revision Of Courses

## 1. Proposing College / School:
- College of Agriculture

## Department:
- Biosystems Engineering

## 2. Course Prefix and Number:
- BSEN 4980

## 3. Effective Term:
- Spring 2011

## 4. Course Title:
- Undergraduate Research

## Abbreviated Title (30 characters or less):

## 5. Requested Action:
- [ ] Renumber a Course
- [ ] Add a Course
- [ ] Revise a Course

## 6. Course Credit:

<table>
<thead>
<tr>
<th>Contact/Group Hours</th>
<th>Scheduled Type</th>
<th>Weekly or Per Term?</th>
<th>Credit Hours</th>
<th>Anticipated Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Hours (Repeatability): 4</td>
<td>var</td>
<td>IND</td>
<td>Semester</td>
<td>2-4</td>
</tr>
</tbody>
</table>

| Total Credit Hours: 2-4 |

## 7. Grading Type:
- [ ] Regular (ABCDF)
- [ ] Satisfactory/Unsatisfactory (S/U)
- [ ] Audit

## 8. Prerequisites/Corequisites:
- Departmental Approval. Junior/Senior standing.

## 9. Restrictions:
- List specific restriction in space above.
- [ ] College
- [ ] Major
- [X] Standing
- [ ] Degree

## 10. Course Description:
- Directed research in the an area of specialty within the department.

## 11. May Count Either
- [ ] (Indicate if this particular course cannot be counted for credit in addition to another)

## 12. Affected Program(s):

<table>
<thead>
<tr>
<th>Program Type</th>
<th>Program Title</th>
<th>Requirement or Elective?</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td></td>
<td>(required or optional?)</td>
</tr>
</tbody>
</table>

## 13. Overlapping or Duplication of Other Units' Offerings:
- [ ] Applicable
- [ ] Not Applicable

(If course is included in any other degree program, is used as an elective frequently by other unit(s), or is in an area similar to that covered by another college/school, attach correspondence with relevant unit)
14. Justification: To strengthen research experiences for undergraduates

(Include a concise, yet adequate rationale for the addition/revision of the course, citing accreditation, assessments (faculty, graduate, and/or external) where applicable)

15. Resources: No additional resources needed

(Indicate whether existing resources such as library materials, classroom/laboratory space, and faculty appointments are adequate to support the proposed addition/revision; if additional resources are required, indicate how such needs will be met, referencing the appropriate level of authorization — i.e. Dean — where necessary; if no additional resources or shifting of resources will be necessary, respond "Not Applicable" )

16. Student Learning Outcomes: 
Students gain hands-on experience in solving biological systems engineering problems, in experimental design and execution and in analysis of data.

(State in measurable terms (reflective of course level) what students should be able to do when they have completed this course)

17. Course Content Outline: See attached syllabus

(Provide a comprehensive, week-by-week breakdown of course content, including assignment due dates)

18. Assignments / Projects: See attached syllabus

(List all quizzes, projects, reports, activities, and other components of the course grade — including a brief description of each assignment that clarifies its contribution to the course's learning objectives)

19. Rubric and Grading Scale: See attached syllabus

(List all components of the course grade — including attendance and/or participation if relevant — with point totals for each; indicate point totals and ranges or percentages for grading scale; for S/U grading, detail performance expectations for a passing grade)

20. Justification for Graduate Credit: N/A

(Include a brief statement explaining how the course meets graduate educational standards (i.e.: rigorous standards for evaluation, development of critical thinking and analytical skills, etc.))

(Include below are standard statements regarding course policies. If necessary, a statement may be altered to reflect the academic policies of individual faculty members and/or the academic unit or department, provided that there is no conflict with the Tiger Cub, Faculty Handbook, or any existing university policy.)

POLICY STATEMENTS

Attendance: Although attendance is not required, students are expected to attend all classes, and will be held responsible for any content covered in the event of an absence.

Excused Absences: Students are granted excused absences from class for the following reasons: illness of the student or serious illness of a member of the student’s immediate family, the death of a member of the student’s immediate family, trips for student organizations sponsored by an academic unit, trips for university classes, trips for participation in intercollegiate athletic events, subpoenas for a court appearance, and religious holidays. Students who wish to have an excused absence from class for any other reason must contact the instructor in advance of the absence to request permission. The instructor will weigh the merits of the request, and render a decision. When feasible, the student must notify the instructor prior to the occurrence of any excused absences, but in no case shall such notification occur more than one week after the absence. Appropriate documentation for all excused absences is required. Please see the Tiger Cub for more information on excused absences.

Make-Up Policy: Arrangement to make up a missed major examination (e.g. hour exams, mid-term exams) due to properly authorized excused absences must be initiated by the student within one week of the end of the period of the excused absence(s). Except in unusual circumstances, such as the continued absence of the student or the advent of university holidays, a make-up exam will take place within two weeks of the date on which the student initiates arrangements for it. Except in extraordinary circumstances, no make-up exams will be arranged during the last three days before the final exam period begins.

Academic Honesty Policy: All portions of the Auburn University student academic honesty code (Title XII) found in the Tiger Cub will apply to university courses. All academic honesty violations or alleged violations of the SGA Code of Laws will be reported to the Office of the Provost, which will then refer the case to the Academic Honesty Committee.

Disability Accommodations: Students who need special accommodations in class, as provided for by the Americans With Disabilities Act, should arrange for a confidential meeting with the instructor during office hours in the first week of classes (or as soon as possible if accommodations are needed immediately). The student must bring copies of their Accommodation Letter and an Instructor Verification Form to the meeting. If the student does not have these forms, they should make an appointment with the Program for Students with Disabilities, 1280 Haley Center, 844-2096 (V/VT).
PLPA 4980
UNDERGRADUATE RESEARCH

Instructor: Dr. Leonardo De La Fuente
Office: 225 Rouse Life Sciences Building
Lab: 217 Life Sciences Building
Phone: 844-2582
lzd0005@auburn.edu

1) Credit hours: 2-4 credit hours.

2) Course Description:
Acquire experience of scientific research in the laboratory. Learn how to conduct a laboratory experiment, analyze the data and present the results in a format suitable for scientific publications.

3) Course Objectives:
Teach the student basic techniques used in microbiology and molecular biology scientific research. The student will be able to design experiments, follow protocols and interpret the results obtained. At the end of the semester the student will write a short report, in the format of a scientific research publication, outlining his/hers findings and discussing problems and solutions learnt during the work.

4) Course Content:
- Aseptic technique
- Preparation of culture media (broth, solid)
- Cultivation of bacteria
- Serial dilutions, enumeration of bacteria (CFU)
- Preparation of stock cultures
- Polymerase Chain Reaction
- Agarose gels preparation and staining
- DNA sequence and BLAST search
- DNA fingerprinting techniques

5) Course Requirements/Evaluation:
The student should be at the research lab at least 6 hours per week (3 hours per week in the lab equals 1 credit hour). The course has variable 2 to 4 credits, depending on the time committed to research in the lab. At the end of the semester the student will prepare a report in the format of a
scientific paper. The report will be evaluated for its clarity and logical presentation of data. During semesters when scientific meetings will be held in Auburn (such as undergraduate research forum) or surrounding areas, the student will be asked to prepare a poster to be presented at such meeting. The grade assigned as A, B, C or D will be based on attendance, disposition for learning during the semester, and the written report and/or poster presented.

Grading System: There will be a total of 100 points. Letter grades will be based on percentages. So the grading scale is approximately:

- A = 90 - 100% > 90 points
- B = 80 - 89% 89 - 80 points
- C = 70 - 79% 79 - 70 points
- D = 60 - 69% 69 - 60 points
- F = 0 - 59% < 59 points

**Lab (Total: 100 points)**
- Attendance 25 points
- Weekly lab notes 15 points
- Data analysis 20 points
- Final report 40 points

6) Academic Honesty Policy:

All portions of the Auburn University student academic honesty code (Title XII) found in the Tiger Cub will apply to this class. All academic honesty violations or alleged violations of the SGA Code of Laws will be reported to the Office of the Provost, which will then refer the case to the Academic Honesty Committee.

**Plagiarism and Academic Dishonesty:**

Plagiarism is the act of presenting directly or indirectly someone else’s work as your own. Plagiarism is a major type of academic dishonesty and will not be tolerated. Similarly cheating on tests in any way, falsifying bibliographies, fraudulent quotes, and similar practices are intolerable forms of academic dishonesty. The University’s policy for academic misconduct in the Student Code of Conduct will be followed for this course (Tiger Club, pp. 83 and 92). Please contact the instructor for any questions regarding its contents.

7) Learners with Disabilities:

Auburn University is committed to providing accommodations and services to students with documented disabilities. Any learner with a qualified disability which requires accommodations should contact The Program for Students with Disabilities, 1244 Haley Center, Auburn University, AL 36849, 334-844-2096 PH, 334-844-2099 FAX. More information is available on their website at www.auburn.edu/disability. The office will fax or mail the required forms to learners to apply for services. Learners who have questions to participate in this course should contact the above office in advance to ensure proper accommodations.