I. Assessment Outcomes from the Course Syllabus

☐ (A) Ability to apply knowledge of mathematics, science and engineering.
☐ (B) Ability to design and conduct experiments as well as analyze and interpret data.
☐ (C) Ability to design a system, component, or process to meet desired needs.
☐ (D) Ability to function on multidisciplinary teams.
☐ (E) Ability to identify, formulate, and solve engineering problems.
☐ (F) An understanding of professional and ethical responsibility.

☒ (G) Ability to communicate effectively in written and oral formats.
☒ (H) A broad education necessary to understand the impact of engineering solutions in global, economic, and societal context.
☒ (I) Recognize the need for, and have the ability to engage in life long learning.
☐ (J) Have a broad education and knowledge of contemporary issues.
☐ (K) Ability to use techniques, skills and modern engineering tools necessary for engineering practices.

II. List of Course Topics from the Course Syllabus

1. Introductory material.
3. Evolution, ecology, the culture of biology, and current research.
4. Biotechnology techniques and applications.
5. Two research projects

III. Course Assessment Summary Table: One row of the table should be devoted to each of the checked outcomes in part I.

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Topics</th>
<th>Specific Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>(G) Ability to communicate effectively in written and oral formats.</td>
<td>Topic 5</td>
<td>Individual oral presentations for each research project.</td>
</tr>
</tbody>
</table>
IV. Using the table as a guide, for each outcome summarize your evaluation of the students’ achievement of that outcome; cite student performance on the identified measures as evidence to support your conclusions.

(G) Ability to communicate effectively in written and oral formats.

All students made two formal presentations as part of their research projects. Students were responsible for all aspects of each presentation including choice of topic, research on the topic, choice of material to present, organization and format of the presentation, and the presentation itself. Each student was critiqued by his or her classmates as well as by the instructor. Students received written comments on both presentations and used the comments from their first presentation during preparation of their second presentation. Ten of the eighteen students showed improvement on their second presentation, and four students performed equally well on both presentations.

(H) A broad education necessary to understand the impact of engineering solutions in global, economic, and societal context.

For the second project, each student was asked to report on biotechnology research being performed at WSU. As part of the project they had to determine the motivation and/or impact of the research on people and/or economies worldwide and include this information in their presentations. All eighteen students did this.

(I) Recognize the need for and have the ability to engage in lifelong learning.

In conjunction with their research projects, students were told about the need for lifelong learning. Choice of potential research projects involved identifying biotechnology research projects at WSU and determining whether they could gather enough information on the project to give a complete presentation. Students used library resources, personal contacts, and Web resources to gather this information. After approval of a research topic by the instructor, students then had to complete their research by interviewing faculty and graduate students, reading publications written by the researchers, consulting textbooks, and learning the background information necessary to understand the research.

V. Qualitative Assessment of Student Performance: Using the arguments above and other data support the claim that students who completed this course with a grade of C or better have achieved each of the intended outcomes of this course.

Successful completion of both research projects indicates that all eighteen students who passed this course achieved the intended outcomes.
VI. Concerns: State any concerns you may hold about this class – were the students adequately prepared coming into it? Are there topics or outcomes where (some) students were weak after completing the course? Other concerns? Were there any comments on students’ course evaluations that should be addressed in future instances of the course? This section is very important for improving our program: It provides critical input to the curriculum committee for identifying areas requiring attention.

Course evaluations for spring 2007 are not available at this time. However, as a result of feedback from students taking this course the first time it was taught (in spring 2006), a number of changes were made. The time spent covering the background information on biological sciences was decreased, and greater emphasis was placed on biotechnology applications. In addition, direct contributions to biotechnology made by engineers and computer scientists were covered. As a result, the course was substantially improved in spring 2007. Most students showed marked improvement in their ability to give oral presentations their second time, but a third presentation might be desirable. The trade-off, however, is less coverage of other material. Some thought will need to be given about what is best for the students.

Signature __________________________________________ Date: _______________________

Please email a copy of the completed form to Patricia Arnold, patricia@eecs.wsu.edu and deliver a signed hardcopy to her mailbox.