# FRESNO CITY COLLEGE COURSE OUTLINE

<table>
<thead>
<tr>
<th>Course Department and Number</th>
<th>Program</th>
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<tbody>
<tr>
<td>Biology 3</td>
<td>Biology</td>
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<table>
<thead>
<tr>
<th>Course Title</th>
<th>Discipline(s)</th>
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<tbody>
<tr>
<td>Ecological Approach to Biology</td>
<td>Biology</td>
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<table>
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<tr>
<th>Date</th>
<th>Fall 2000</th>
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<table>
<thead>
<tr>
<th>Catalog Description</th>
<th>[ ] no change [x] revised/clarified [ ] new (check one)</th>
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<tbody>
<tr>
<td>Prerequisite</td>
<td>[ ] no change [x] revised/clarified [ ] new (check one)</td>
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<tr>
<td>Corequisite</td>
<td>[x] no change [x] revised/clarified [x] new (check one)</td>
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<tr>
<td>Advisory</td>
<td>[ ] no change [ ] revised/clarified [x] new (check one)</td>
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Units, hours, repeatability, credit/no credit, number of weeks: [x] no change [ ] revised [ ] new (check one)

4 unit(s) | 3 lecture hour(s) | 2 laboratory hour(s) | 0 number of repeats (maximum = 3)

Credit/no credit only | 18 number of weeks

Prerequisite: None
Corequisite: None
Advisory: Eligibility for English 25 and 26 or English 53 or ESL 67 and 68 recommended.

Description: Recommended for the non-biological science and pre-education majors. Integrated approach using ecology to establish interrelationships between plants, animals, man, and the planet Earth; local flora, fauna, and biotic communities. Field trips required.

Entry Level Skills: Upon entering the course, the student should be able to:
1. Demonstrate ability to determine literal and interpretive meaning.
2. Demonstrate skills to employ reading strategies and the reading process.
3. Write short compositions which limit subjects, unify content by common purposes or main ideas, adequately develop ideas, specify and supply details, use appropriate diction, and avoid extensive errors in grammar, usage, and mechanics.

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<tr>
<th>Requested Credit Classification (Applicant)</th>
<th>[ ] Course contains an international component.</th>
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<tbody>
<tr>
<td>[X] Degree Applicable</td>
<td>[ ] Noncredit</td>
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<tr>
<td>[ ] Nondegree Applicable</td>
<td>[ ] Revised</td>
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</table>
Expected Outcomes/Objectives: Upon successful completion of the course, the student will be able to:

1. Identify basic ecological concepts and evaluate current environmental issues.
2. Be familiar with the diversity of living organisms and recognize major taxonomic groups.
3. Demonstrate an understanding of trophic relationships.
4. Evaluate, in a critical manner, scientific literature and current biological achievements.
5. Apply the concepts of evaluating the role of the human species as it applies to human ecology.
6. Evaluate and appreciate nature through observation of natural phenomena.
7. Apply the principles of classical and molecular genetics to human decision making processes.
8. Utilize laboratory and field experiences to validate concepts, perform observations, and experiments.
9. Demonstrate and understanding of man's position on the planet Earth and pressing ecological problems.
10. Apply the principles of governing the distribution and identification of the various plant communities.
11. Demonstrate an understanding of plant and animal succession.
12. Identify life as an entity from an evolutionary approach.
13. Demonstrate an understanding of the chemical and energy relationships at all levels of biological organization.

Texts, Other Readings, and Materials:


Lab Manual  

[X] Primarily College Level  
[ ] Primarily not College Level  
Professional evaluation by Biology Department Staff  
(How Determined)

Out-of-Class Assignments:  
7 hours per week (or equivalent)

[X] Permissible exceptions to the common interpretation as stated are as follows: (AR 7200) (1) (2) (3) (4) (circle one)

List types:

1. Reading assignments pertinent to lecture materials.
2. Reading assignments pertinent to laboratory activities.
3. Written assignments.  
Assignments which are to be completed outside of class are made to support laboratory lessons. Students are expected to spend one hour per week in preparation for laboratory. This is accomplished through reading and completion of preliminary guide sheets or other materials.

[X] Class participation and assignments require and develop critical thinking (see Expected Outcomes/Objectives). Describe how:

Biology 3 is a combined lecture and laboratory course that enables students to study information, verify data, and validate biological concepts through the Scientific Method. Specific examples include the following: 1) Analysis of data relating to food chains, and 2) Solving genetic problems based upon Medelian and molecular genetic concepts.
<table>
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<tr>
<th>Primarily College Level</th>
<th>Not Primarily College Level</th>
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<td>2 hours of independent work done out of class per each hour of lecture or class work, or 3 hours lab, practicum, or the equivalent, per unit.</td>
<td>Ratio of amount of work per unit of credit required by curriculum committee for a nondegree credit course is met.</td>
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Assessment:

Grades will be based upon:

**[X] ESSAY**

Students are to write a term paper, project and lab reports, and answer essay questions on major exams. The components comprise 25 percent or more of the assessment.

**[ ] COMPUTATION**

*

**[ ] NONCOMPUTATIONAL PROBLEM-SOLVING**

Examples:

**[X] SKILL DEMONSTRATION**

Kind: Students will be able to perform standard laboratory skills, microscope usage, instrument usage and calibration, field analysis techniques, the use of dichotomous keys, independent perception skills, data analysis, and laboratory safety procedures.

**[X] MULTIPLE CHOICE**

Standard type multiple choice type questions will be used.

**[X] OTHER:** Describe. (Examples: tests, quizzes, homework.) Laboratory practicums

*For degree credit: At least one of the first three boxes above must be checked, and if "essay" is not checked, it must be explained why essays are an inappropriate basis for at least 25% of the grade in the course.*
Expanded Description of Content and Methods:

Content:

1. History of biology and the scientific method
2. Natural history of Central California
3. Cell structure, function, and chemistry
4. Taxonomic systems (basis for classification)
5. Protista and Fungi
6. Primitive land plants
7. Seed plants
8. Lower invertebrates
9. Higher invertebrates
10. Chordates
11. Principles of ecology - interrelationships, energetics, and cycles
12. Communities, biomes, and life zones
13. Human ecology
14. Evolution
15. Heredity and population genetics
16. The structure and function of genes

Laboratory

Laboratory investigations include: care and use of microscopes, cell studies, use of dichotomous keys, plant phylogeny, animal phylogeny, plant and animal distribution in Central California, field studies and local environments, genetics, evolution, ecology, and plant and animal adaptations.

Outside Activities

These include field trips, library research, individual projects, seminars, participation in various community organizations, and selected lectures.

Methods:

1. Standard lecture methodology will be used including, but not limited to, audiovisual aids, overhead projections, video laser discs, and interactive techniques such as discussions, quizzes, and general questioning and answering.

2. Standard laboratory instructional methods will be used in each lab topic including, but not limited to, independent observation and analysis, perception skills, instrument usage and dissection techniques which support lecture subjects through personal observations and the interactions with local physical and biotic environments.

Revised 04/96