1. **Catalog Description**
   a. 2320 BIO
   b. Economic Botany – Role of Plants in the World Economy
   c. 3-0-3
   d. Spring
   e. Economic Botany
   f. The impact of plants and plant products on the world economy, with emphasis on the U. S. economy. Course also includes information on the origin, development, diversity and future impact of plants and plant products on the world economy.
   g. BIO 1200G or permission of the instructor
   h. Spring 2007

2. **Student Learning Objectives and Evaluation**
   a. Students will:
      1. evaluate how plants and plant products impact the world economy, with emphasis on those plants and plant products that substantially impact the economy of the United States
      2. analyze how plants and plant products helped shape human history
      3. describe why it is vital to save plant genetic diversity
      4. compare and contrast how plants and plant products impact all aspects of our lives
      5. evaluate research that is developing plants for phytoremediation

   b. **Assessment/Evaluation**
      Student achievement of the stated objectives will be assessed and grades earned based on the following activities:

<table>
<thead>
<tr>
<th>Evaluate impact of plants on the economy</th>
<th>Written Product Report (7%)</th>
<th>Small Group Project (12%)</th>
<th>Oral Report (21%)</th>
<th>3 Exams (36%)</th>
<th>Final Exam (24%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Evaluate impact of plants on human history</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Describe</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
importance of saving plant genetic diversity

Compare and contrast impact on student’s lives by plants/plant products

Evaluate research developing plants

<table>
<thead>
<tr>
<th></th>
<th>X</th>
<th>X</th>
<th>X</th>
<th>X</th>
<th>X</th>
</tr>
</thead>
</table>

e. This course is not technology-delivered.
d. Not a graduate-level course
e. This course is writing-active. The writing activities in this class will include essay questions on exams, a short paper and brief writing assignments on some homework activities. The primary goal of the writing activities will be to assist the students in mastering the course content. The type and frequency of the writing activities and the primary goal of the activities place this course in the writing-active category.

3. Outline of the Course
a. 3 fifty-minute class periods/week for 15 weeks

<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture Topics and/or Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction to Course and a Brief Overview of Plant Structure and Function</td>
</tr>
<tr>
<td>2</td>
<td>The Role that Plants Play in Fulfilling the Four Major Needs of Humans – Food, Clothing, Shelter and Energy; A Brief History of the Development of Agriculture and How Human Civilization Arose in Agricultural Based Settlements; Major Food Crops of the World; the Environmental Cost of Modern Agriculture (New)</td>
</tr>
<tr>
<td>3</td>
<td>Major Plants that Supply Carbohydrates; Plants that Supply Protein</td>
</tr>
</tbody>
</table>
| 4    | Plants that Supply Lipids; Health Issues Surrounding Lipids Including Plants that Supply Omega 3 Fatty Acids (New); Genetically Modified Plants – What Are They? What is the
Controversy That Surrounds Them? (New); Phytochemicals and Food (Expanded)

5 The Caffeine Containing Plants – Coffee, Tea, Chocolate, Kola, Kava, etc.; Health Related Information About Caffeine Usage – the Good and the Bad! (New)

6 Alcoholic Beverages; The “Cost” to Society Due to the Misuse of Alcoholic Beverages; Health Related Information About Alcohol Use – The Good and the Bad (New)

7 Spices and Herbs – Including a Brief Account of the Spice Trade and How the Unquenchable Desire by Europeans for Spices (Dyes, Silks and other products) from the Far East Stimulated the “Great Voyages of Discovery”

8 Plant Fibers – Textiles, Ropes, Baskets, Mats, Paper Lumber, Etc. (Expanded)

9 Medicinal Plants – Historical and Modern

10 Introduction to Herbal Supplements (Expanded); Oral Presentations by Students on Selected Topic

11 Plants that Contain Psychoactive Compounds; Economic Impact of Problem Plants – Weeds, Invasive, Allergy Causing and Poisonous (New)

12 Perfumes, Resins, Waxes and Solvents (New)

13 Plant Fuels – Coal, Oil, Natural Gas, Wood, Roots, Peat, Bio-diesel, Ethanol, etc. (New)

14 Ornamental Plants (Expanded); Film; Speaker from a local plant nursery, florist or landscaping business

15 The Role of Plants in Phytoremediation (New); Saving Plant Genetic Diversity; “Seed Banks” (New); Film; Plants for the Future (New)

b. Not technology-delivered
4. Rationale
   a. Two, fifty minute lectures a week have never been sufficient to cover the course material. Changing the course to allow three, fifty minute periods a week will allow time for more student discussion of topics, for expansion of some of the previously presented topics and for the addition of several new topics that are needed in order to present a more complete picture of the tremendous impact of plants/plant products on the economy. The course outline indicates which topics will be expanded and which will be added (new), if this course proposal is approved.
   b. This is a revision of an existing course at the 2000 level. Although most students who will enroll in this course will have taken BIO 1200G or an equivalent, it is possible that a transfer student who has not taken BIO 1200G will have taken enough college level biology courses to succeed in Economic Botany.
   c. Similarity to existing courses:
      1. The historical information (two 50 minute lectures on the development of agriculture, 30 minutes on the history of the spice trade and one fifty minute lecture on historically important medicinal plants) presented in Economic Botany is similar to information presented in EIU 4111G, Plants and Civilization. This overlap will not be a problem because students taking Economic Botany will be Biological Sciences majors while students taking EIU 4111G will not be Biological sciences majors.
      2. This is a revision of an existing course, BIO 2320.
   d. Impact on Program:
      1. This course will be used as an elective for Biological Sciences majors and minors as well as the Anthropology minor (Group B: Physical Anthropology and Archaeology).
      2. Not a graduate-level course

5. Implementation
   a. Nancy Coutant or any qualified faculty member of the Department of Biological Sciences
   b. No additional cost to the students

6. A community college course may be judged equivalent to this course.

7. Date approved by the department curriculum committee: 31 October 2005

8. Date approved by the college curriculum committee: 9 December 2005

9. Date approved by CAA: 19 January 2006