

COLORADO COLLEGE - OFFICE OF THE REGISTRAR

APPLICATION FOR ADMISSION TO THE MAJOR IN LIBERAL ARTS & SCIENCES

I wish to major in Liberal Arts & Sciences. I understand that my courses of study within this major must be supported and approved by two faculty sponsors from two different departments, one of whom is my principal sponsor and academic adviser. Both faculty sponsors must evaluate the project or thesis. However, the Principal Sponsor/Adviser works closely with the student in conceptualizing and completing the thesis and turns in the final grade. The Associate Sponsor acts as a reader of the final draft of the thesis and recommends a final grade to the Principal Sponsor. The approval of the Dean's Advisory Committee is necessary for final acceptance of my plan of study within the major. In addition, I understand that, to make changes in the approved plan, I must have the agreement of each faculty sponsor. The Principal Sponsor should send a letter in support of the proposed changes to the Associate Dean of the College and the Registrar.

(Please submit 7 copies of this application and your Liberal Arts & Sciences proposal to the Dean's Advisory Committee no later than the second semester of your sophomore year. The Advisory Committee will not consider your application until the completed proposal - including faculty recommendations - has been received.)

Name (Please Print) \_\_\_\_\_ ID Number \_\_\_\_\_

Worner Bo \_\_\_\_\_ Phone \_\_\_\_\_ Student Signature \_\_\_\_\_

Current number of units earned 19 Expected graduation date 2007

Address \_\_\_\_\_  
Street \_\_\_\_\_ City Colorado Springs State CO Zip 80903

Principal Sponsor/Adviser \_\_\_\_\_ Dept Chemistry / Environmental Science

Associate Sponsor \_\_\_\_\_ Dept History / Southwest Studies

Description of the field of concentration (TITLE) Agroecology  
(A Socio-ecological Investigation of Agriculture & Food Production)


This form must be signed by two faculty members from different departments who are full-time or adjunct faculty members who will be here (to the best of their knowledge) while the student is completing the major. Sponsors should also forward their letter of recommendation once they have signed this form. Return to the Office of the Associate Dean of the College, along with a description of the major and the required courses (including a description of the thesis topic). The Associate Dean will notify both student and sponsors of acceptance or rejection of the proposal, and the outline of the proposed major will be approved by both sponsors and sent to the Registrar. (Any change of adviser must be approved by the Dean's Advisory Committee, upon submission of a letter from the adviser.)

Principal Faculty Sponsor Sally Meyer

Associate Faculty Sponsor Anne F. Hyde

To the Sponsors: your signature indicates approval of the proposed major. Please comment on this proposal in a brief letter to the Advisory Committee under separate cover. Please indicate your familiarity with the student's past academic performance and comment on his/her ability to carry out a program which requires an unusual amount of independence and responsibility. The Principal Faculty Sponsor/Adviser agrees to work closely with the student in composing the major, conceptualizing and completing the thesis and advising the student.

\_\_\_\_\_  
approved: 11/17/05  
Victor Velazquez-Citueron

  
LAS: Agroecology

To the Dean's Advisory Committee,

I wish to propose a major in the socio-ecology of agriculture and food production by integrating courses in biophysical and social sciences. For a thorough analysis of issues facing contemporary food production, it is absolutely necessary to integrate domains of human understanding. Such an integration is different from what any major at Colorado College can offer, and hence my proposed major. While at CC, I have developed a strong interest in ecological agriculture; what started out as an innocent love for plants has transformed into a life decision to bring about change through an understanding of ecological agriculture in the context of a broader socio-economic and political framework. I build my supporting arguments for the major by first introducing the committee to the field of ecological agriculture, otherwise known as Agroecology. I then briefly address the biophysical, socio-economic, political, and cultural fabric of agroecology as a whole. I continue by revealing the need for an interdisciplinary approach to the study of agroecology which explains why I can't accomplish my goals in a preexisting major; and conclude with a projection of my long term plans.

### **Introduction**

Agriculture is the largest industry on Earth, and perhaps, the single most threatening force to biodiversity and natural ecosystem functioning. About fifty percent of the habitable land on Earth is used for agriculture and livestock practicing (Clay, 2004). Agriculture plays a powerful role in local, national, and global communities, and in its conventional form agriculture creates large-scale ecological and socio-economic problems

Agroecology is a relatively new discipline directed to compensate for the poor handling

throughout the natural world living year round beneath the ground. This allows for better soil retention and more efficient use of water and nutrients. Clearly, an understanding of biophysical factors is necessary for the study of ecological agriculture.

### **Socio-economic Factors**

Social inequities are numerous throughout the agriculture and food system. Inequalities exist among developed and developing countries, agricultural landowners and non-landowners, the labor force and those who invest capital in agricultural organizations. The number of people who practice agriculture are declining, giving way to large-scale farmers who are subsidized by governments. In the US, less than one percent of the population are farmers; eighteen percent of U.S. farms produce 87 percent of the national foodstuffs (Clay, 2004). One reason for a decline in the number of active farmers is urbanization. Moreover, an interplay of government policy and socio-economic variables favors mass-producing agribusinesses. To avoid high food prices and urban unrest governments will subsidize the purchase of inputs, which secures production and allows farmers to sell at lower prices. As a result, large scale farms produce more heavily and value quantity over quality. Small-scale farmers and rural populations are forced off their land, migrating to the cities. Cultural knowledge and values are lost when children leave the family farm in search of income and opportunity within the confines of city limits. These are but a few examples of the multitude of socio-economic variables interconnected with the whole of agricultural and food systems. As an undergraduate I would like to generate an understanding of how the socio-economic variables interact with ecological agriculture. Weighing in all the variables at the undergraduate level will expose me to the multifaceted opportunities of focus, and thus more readily prepare me to choose a specialized aspect in graduate school.

approach in the design of modern sustainable agriculture. I have included a few Anthropology classes that will give me the ability to investigate particular indigenous food production and consumption practices.

### **The Interdisciplinary Nature of Agroecology**

I have briefly addressed the multidimensional aspects of ecological agriculture. When viewed from a context beyond the natural sciences, a larger, more holistic picture begins to take form. Such a picture incorporates the prevailing role of humans in food producing systems as well as the necessity for those in power to consider ecological and socio-economic principles. By majoring in Biology, Sociology, Anthropology, Economics, or Environmental Science alone I would be fractionalizing the study of systems as they pertain to my interest. I came to a liberal arts and sciences institution in hopes that I would be able to choose an area of interest and pursue it by drawing from relevant disciplines to form a more well rounded understanding. Ecology is by definition the study of whole system interactions of the natural world. Humans impact the natural world more than any other organism, bringing to the table a complex set of socio-economic and cultural variables. Agroecology studies require . . .

technological innovations, agriculture policy changes, socio-economic changes, but mostly a deeper understanding of the complex long-term interactions among resources, people and their environment. To attain this understanding agriculture must be conceived of as an ecological system as well as a human dominated socio-economic system. A new interdisciplinary framework to integrate the biophysical sciences, ecology, and other social sciences is indispensable. Agroecology provides a framework by applying ecological theory to the management of agroecosystems according to specific resource and socio-economic realities, and by providing a methodology to make the required interdisciplinary connections (Altieri, 2004).

Ecological agriculture requires both an integrated and systematic approach that dissolves the barriers between disciplines and allows for necessary communication.

science and be able to cultivate my own land ecologically. I will then open my land up as a meeting ground for local activism, conservation, social organization, and artistic expression. I want to be able to form alliances and organizations aimed at bettering local communities in the US through innovative and practical measures. An ability to articulate my beliefs and communicate with people of all social, economic, and political classes is necessary. If given the opportunity, I will try to be involved with national and global circumstances as well. I feel that the proposed major will give me the best foundation to start on the path of my dreams.

Attached is a descriptive list of classes that will embody my major as well as complementary classes that are not part of the major but that will help strengthen my curriculum. The selected classes examined as a whole have both depth and breadth. Thank you so much for considering my proposed major. I hope that I have demonstrated that I am passionate and willing to work hard. I am not proposing this major to opt out of particular classes. Rather, I feel drawn toward a curriculum as such, and believe that it should be a part of a liberal arts and science college curriculum.

Sincerely,

[Redacted signature area]

agriculture as a public policy. Similarly, in the Plant Environmental Physiology class I have to write an extensive scientific paper which will prepare me for any sort of ecological experimentation.

## Core Curriculum

### NOTE:

+ Denotes a class that has already been completed

~ Denotes a class that will be completed by the end of the 2005-2006 academic school year  
Nothing next to the title denotes that the class will be completed during the 2006-2007 year

**+105 Biology of Plants.** The study of plants with emphasis on the flowering plants. Relationships between form and function, growth and development and evolutionary and ecological relationships are examined through laboratory and discussion activities. CH 107 or strong high school chemistry background strongly recommended. (Meets the laboratory/field requirement for natural sciences.) *Prerequisite:* Chemistry 107 strongly recommended. (Meets the Critical Perspectives: Scientific Investigation of the Natural World lab or field requirement.) 1 unit — Ebersole, Heschel, Kelso.

\* This course introduced me to the botanical world and built a foundation of which I will expand through upper level botany classes. I studied the structure, function, and reproduction of plants. Fundamental aspects of plant science were explored with implications of botanical knowledge needed for applied plant sciences. Plant science is a central component in the construction of agroecosystems. When implementing agroecological concepts into the farm, the life cycles of plants and their interactions with the surrounding environment, especially the soil, are of critical importance. As a final project I studied the interaction of an invasive species, Diffuse Knapweed. Invasive species are sometimes known to be allelopathic, which means that the plant exhibits some sort of toxicity through its fallen leaves or embedded roots, thereby out competing the surrounding plants. This is an example of the interrelatedness and constant interaction of the natural world that is crucial to understand when applying agroecological techniques to agriculture.

**120 Topics in Environmental Science: Sustainable Agriculture: From Theory to Practice**  
(3 weeks off-campus in Colorado) *cross-listed as SW 2001 CC unit* Fulfills one unit of the natural sciences and AP:B requirement at Colorado College. There are many theories of how modern agriculture could be transformed into something that will be sustained into the future and able to feed the increasing world population. In this course we will learn about organic and natural agriculture, agroecological approaches to agriculture, and holistic ranch management. Some of the authors we will read are Wendell Berry, Wes Jackson, and Alan Savory. The course will be taught in the field using Southwest models of these theories of sustainable agriculture. We will visit conventional farms and ranches to learn about issues of our agricultural practices. Then we will visit new models of agriculture in Colorado and New Mexico. The majority of time will be spent on the Two Creek Ranch near Monte Vista, Colorado, learning about the challenges of implementing organic ranching practices in the semi-arid San Luis Valley. - Sally Meyer and Miro Kummel

\* This class expands and compounds on the core curriculum of Biology of Plants and Ecology. It provides a more specific study of the ecology of plants. By studying the evolution and life histories of plants within a particular bioregion, a more appropriate comprehension begins to take form; one begins to see how and by what interactions plant species presently function and are structured. This class will enable me to explore the coevolution of plants. As a result, more intricate patterns and relationships will be revealed. Plant genetics will also be covered in this class. Plants all over the world are becoming extinct due to habitat fragmentation and as a result genetic erosion is prevalent. Conserving and preserving biodiversity is a central component of ecological agriculture. Agroecologists have been known to start seed banks. These are areas where native seeds are grown and stored so that they don't go extinct. This class would give me a more refined understanding of the diversity of the plant world. Diversity begets diversity. Contrary to conventional agriculture, one of the key components of sustainable agriculture is to ensure that agricultural land remains fertile for the long term. A diverse agroecosystem will increase fertility over the long term.

**474 Plant Environmental Physiology.** Whole plant physiology with an emphasis on selected environmental factors that influence various aspects of plant growth and development. Includes discussion sessions on contemporary ideas in the discipline, an independent laboratory/field investigation and an emphasis on writing a scientific paper. (364 or 208 recommended).

**Prerequisite:** Consent of instructor or Biology 105 or 212 and 210 (BY 364 or 208 recommended). 1 unit — Heschel.

\* This is another class that addresses whole system thinking. It will cover aspects of plant structure and functioning, such as water and mineral relations and regulatory processes in extreme depth. There is an emphasis on the way in which the environment influences the growth and development of plants. The growth and development of plants in the natural world can be translated into the growth and development of food and fiber in agroecosystems. Learning about how plants interact with particular environmental factors will prepare me for the creation of agroecosystems. The discussion sessions on contemporary ideas will prepare me for the most relevant topics in plant physiology. A scientific paper is required and stressed, which will allow me to develop a topic of my choice. This will be good practice not only for my senior thesis, by learning how to gather and interpret data, but for future scientific explorations, outside of Colorado College.

+ **AN208 – Human Ecologies of the Southwest.** A study on the link between humans and their regional environment, in this case the Greater Southwest. Much of our early work will focus on background knowledge, the necessary base of language and terms to understand the unique geography and history of the Greater Southwest. We will also use this time to detail and discuss the variety of ecological adaptations, bio-physical and human, evident throughout the region. (Also listed as EV260 and SW200) 1 unit - Perramond

\* This course explored the bio-physical, ecological, political and socio-economic diversity that makes up the Greater Southwest. It incorporated a full spectrum of issues that relate heavily to my proposed major. We spent a week in Taos and Santa Fe where we got to see the remnants and evolution of human subsistence strategies. We visited Don Bustos's organic farm in Espanola,

**242 The Anthropology of Food (with Emphasis on Writing).** This course will explore food concepts, analytical methods, and the food habits of different ethnic groups. The class will have a field trip to the San Luis Valley, and to Northern New Mexico to document the production of food among farmers, cattle ranchers and restaurateurs. (Meets the Critical Perspectives: Diverse Cultures and Critiques requirement.) (Meets the Critical Perspectives: Diverse Cultures and Critiques requirement.) (Limited to 12 students.) (Not offered 2005–06.) 1 unit.

The following is an selection from the course syllabus. . .

*This course focuses on how food marks social differences and boundaries, how food events encode, and regulate social relations, how food enacts gender distinctions, social hierarchies, and power relations. Overall, this course relies on meaning-interpretive and materialist perspectives to help us understand how food has the ability to convey meaning as well as to nourish our bodies. (1) The first section of the course focuses on symbolic meaning-centered interpretations and research methods used in the study of anthropology of food. It will examine several theoretical perspectives used in the analysis of food: structuralism, semiotics symbolism, and feminism. (2) The second section examines how food is related to the construction of gender identity and power relations. It focuses on how gender is constituted through men's and women's roles in the production, distribution and symbolism of food. (3) The third section consists of a field trip to Southern Colorado and Northern New Mexico. We will visit farmers, restaurateurs, and food companies. (4) Finally, this course incorporates a strong writing emphasis component. Our writing and reading will focus on the anthropology of food.*

\* This class will cover the crucial cultural components of the entire food system; food production, distribution, and consumption are all culturally distinct phenomena. It will give me a better understanding of the various social constructs and cultural manifestations of food systems. The field trip to Southern Colorado will be yet another hands-on field component essential for preparation of the world outside of CC. We will visit both farms and farmer markets. Farmer markets are open spaces where farmers interact with one another as well as the consumers, creating a collaborative enterprise. Both culture and socio-economic variables are evident throughout the farmers market. The emphasis on writing will contribute articulation of my ideas and ultimately aid in a final thesis paper.

**~321 Public Policymaking.** Forces shaping public policies and decisions; internal politics of the national bureaucracy, the Presidency and Congress. Applies theories of policymaking to such cases as the environment, race and military affairs. Prerequisite: Political Science 101, 103 or 104 or consent of instructor. (Also listed as Environmental Science 373 and Women Studies 321.) **2 units** — Dunham.

Public Policy is a complex issue. In order for substantial agricultural change to occur, there needs particular policies will need to be instituted. In order for this to occur, those in charge of national policy need to be aware of the affects of conventional agriculture and the possible socio-ecological benefits of sustainable agriculture and food systems. This two-block course will provide me with an understanding of public policymaking at the national level. There is a substantial research paper at the end of the second block that will allow me to develop a topic of my choice. Here, I will be able to explore the possibility of ecological agriculture as a national policy. An understanding of

## 400-401 Senior Thesis (2 units)

- 2 100 Level
- 4 200 Level
- 4 300 Level (One of which is 2 credits)
- 3 400 Level (Two of which are senior project blocks)

Total: 14 credits

### Complementary Classes:

#### NOTE:

+ - Denotes classes that I have already taken

~ - Denotes Classes that I have not yet taken but will complete by the end of the summer of 2006  
Nothing next to the title denotes a class that will be taken during the 2006-2007 school year.

#### ~ 398 Program in Ecological Agriculture and Society Internship (To be taken Summer 2006)

This is a three month long internship where I will be working on a farm in Missoula, Montana five days a week in the morning and taking a class in Ecological Agriculture in the afternoon. Not only I will learn how to farm using ecological principals but I will be part of the entire system of production, distribution, consumption; the produce that I grow along with the other students is sold at the local farmers market where I will be able to interact with the local community, thus exposing myself to the socio-cultural variables. The formal portion of Summer PEAS focuses on Agro-ecology. I will examine crucial biological production issues (i.e., soil fertility, weed management, crop physiology, and pest management in light of the health of the whole system). Each week a different subject will be addressed in lecture. The long-term ecological effects of common agricultural practices as they come up within different subject areas will be addressed. NOTE: I would have incorporated this program as part of the core curriculum, for it is foundational, however, there is a fourteen credit limit. It is an upper level class that I will be able to include if for some odd reason another class doesn't work out.

~183 **Community Organizations in the Southwest.** A semester long learning experience that combines class discussions with a strong emphasis on community-based experiential learning. Students work a minimum of two hours per week over the semester in a local community organization. We will examine the interaction between human culture and environment as seen in traditional southwestern community groups that engendered a sense of place unique to the Southwest. Through a combination of community service, historical context and class discussion students will develop some perspective on civic engagement as an organic feature of communities over time and across places. (Offered by the semester as an adjunct course.) No prerequisites. (Meets the Critical Perspectives: Diverse Cultures and Critiques requirement.) (Also listed as American Cultural Studies 183.) .5 unit — M. Levine.

(Meets the laboratory/field requirement for natural sciences.) Prerequisite: Consent of instructor or 2yrs Studies in Humanities Algebra and 1yr Studies in Humanities Chemistry. (Meets the Critical Perspectives: Scientific Investigation of the Natural World lab or field requirement.) -1 unit

**141 Sustainable Development.** Investigates the concept of sustainable development by first introducing the necessary economic terms and concepts. It next explores traditional economic models of production and distribution. Finally it introduces the concept of sustainable development (meeting the needs of the present without compromising the ability of future generations to meet their own needs). It includes fieldwork and may involve additional expense. Counts as one unit of social science credit, but not as a natural science credit. Prerequisite: No Economics credit after Economics 150, 151, 152 or 160 and May not be counted toward Econ or Poli Econ majors. (Also listed as Economics 141 and Southwest Studies 141.) 1 unit — Hecox.

~**151 Principles of Microeconomics.** An introduction to the principles of microeconomics with emphasis on decision-making by households and firms, the way in which individual markets work, the distribution of income, and governmental impact on specific markets. 1 unit — Fenn, Johnson, Smith.

+ **102 Cultural Anthropology.** The study of human societies through the central concept of culture. Explores such topics as meaning, adaptation, social organization, kinship, religion, environment, technology and conflict. Presents anthropological themes including holism, comparison, dynamism and cultural relativism, as well as methodological approaches to studying human experience in naturally occurring contexts. (Meets the Critical Perspectives: Diverse Cultures and Critiques requirement.) 1 unit — Hautzinger, Trujillo.

+ **101 Biological Anthropology.** A survey of major topics in biological anthropology, including: background material in genetics and evolution, non-human primate behavior, human evolution and biological variation, skeletal studies, and the concept of race. Emphasis on biocultural interactions. Occasional laboratory experiences complement lectures, reading, and discussion. (Meets the requirement for Natural Science credit.) (Does not meet the divisional requirement in the Social Sciences or the outside unit requirement for students majoring in the natural sciences.) (Meets the Critical Perspectives: Scientific Investigation of the Natural World requirement.) 1 unit — Torres-Rouff.

#### + **309 Topics in Anthropology: Medical Anthropology**

A survey of medical anthropology, this course focuses on the study of health and illness in a cultural context. Topics include the varying perceptions of “normality” and “abnormality” in various cultures, how individuals and communities experience, explain, diagnose, and treat illness in a given culture, the relationship between patient and healer, belief systems and healing (including religiously based healing, psychiatry, shamanism, alternative health care, and biomedicine), and the use of multiple systems for healing (medical pluralism). The primary objective to the class is to sensitize the student to the cultural imbeddedness of health (including the politically economy of health care), illness, and healing so that accurate assessments and interventions can be planned and implemented. The course will have a strong applied focus-using case studies to examine successful and less successful interventions and health programs. This is a valuable course for anyone considering a career in the health fields or social work. Prerequisite: 102 or consent of instructor. 1 unit- Scandlyn.