

Minutes
Curriculum Committee
College of Agricultural Sciences and Natural Resources
July 15, 1993
9 a.m.
East Campus Union

Present: Larson (Chairman), Jones, Lunde, Waller,
Walters, Wehling.

Absent: Martin, Schneider, Supalla.

1. **Minutes of the previous meeting.** Walters moved approval. Seconded by Wehling. Motion carried.

2. **Agricultural Sciences--New course proposal, AgSci/NatRes 103.**

Schinstock shared with the committee the small number and types of comments received in response to the committee's June 11 letter to the faculty soliciting input on the course outline.

Waller moved acceptance of the course proposal, asking that when the proposal is forwarded to the faculty, the faculty be given information about the broad area of disciplines that will be covered by the faculty who are willing to be involved with the course, and that the faculty be given a bit of history of the evolution of the course. Walters seconded the motion. Motion carried.

3. **General Agriculture--revised curriculum.** Jack Schinstock was present to discuss the committee's concerns expressed at the previous meeting and to explain the changes that he had made in response thereto:

--Physics 141 was added as a choice under the Natural Sciences requirement.

--Genetics was added as a requirement under Natural Sciences.

--Footnote to the heading, Major Requirements Agricultural Sciences Courses will be added: "May not include independent studies, special problems, seminars, career or industrial experience, or study tour."

--Commodity Protection credit-hour requirement has been raised from 2 to 5-6. Qualifying Entomology courses have been listed.

--Utilization credit-hour requirement has been raised from 3 to 5-6.

DRAFT

NEW COURSE PROPOSAL

DESCRIPTION

AgSci 103/NatRes 103. Food, Agriculture, and Natural Resource Systems (3 cr I, II) Lect 2 disc 1.

Analysis and evaluation of Agricultural and Natural Resource topics from the perspectives of the natural resource base, energy budget, the environment, and economic and societal aspects. Students will evaluate case studies of systems in food production and food processing for their ecological soundness, economic viability, social responsibility, and scientific appropriateness.

FACILITATORS

Faculty facilitators are nominated by the CASNR Faculty Advisory Council in consultation with unit administrators and the Dean's Office, and approved by the CASNR Curriculum Committee. Facilitators are responsible for securing the faculty discussion leaders, subject to approval of the CASNR Curriculum Committee, and providing orientation for the implementation of course objectives. Each faculty team (facilitators and discussion leaders) may develop a course outline to meet the course objectives.

OBJECTIVES

Upon satisfactory completion of this course, students will be able to:

1. Describe the natural resource base upon which each person depends and identify economic and social forces affecting its stewardship.
2. Explain the energy budget from energy's original captured solar source via its conversion by plants and animals to consumer uses.
3. Analyze the benefits and possible side effects on the environment of growing, harvesting, and processing plants and animals as nutrients/biomass enter and leave a landscape unit either supplementally or by natural recycling.
4. Discuss the economic relationship between profit-making by producers and processors of agricultural commodities and the energy and mass balance budgets of a system.

5. Recognize external influences on the social, ethical, and environmental responsibilities that should accompany changing processes, products, services, and systems.
6. Solve problems and make decisions more effectively by applying analytical, logical, and critical thinking skills.
7. Synthesize diverse bodies of intellectual content to look for solutions to global concerns.
8. Examine issues in concert with other students, clientele groups, and field professionals.
9. Recognize interdependencies among disciplines as problems are addressed and conflicting values of people as they use resources in various ways.

JUSTIFICATION/PURPOSE

Employers of college of agriculture and natural resources graduates have expressed concern about the limited ability of new employees to identify and analyze problems, to suggest solutions, and to synthesize and integrate information across discipline lines. The knowledge explosion has led to development of more specialized courses, resulting in materials being presented in a manner which fails to make interdependencies apparent. Students seldom appear to know or understand the breadth and interdependencies of disciplines within the college by the time they graduate.

A course such as AgSci 103/NatRes 103 provides a logical framework, with real examples, of inter-relationship among disciplines while developing the students' analytical, logical, and problem solving skills. The continual application of these skills in a variety of situations during their college experience will make the students more effective problem solvers capable of arriving at meaningful solutions.

The purpose of AgSci 103/Nat Res 103 is to broaden the scope of agricultural science and natural resource students so that they can develop an understanding of the concepts and vocabulary needed in future courses and careers. Students will be exposed to current problems and multidisciplinary approaches to address them.

METHODS

Students will meet in a common lecture for two one-hour periods per week that will be taught using the team approach. Active learning strategies will be extensively used in these common lectures, including: 1) periodic pauses during a lecture so that students can work in pairs and share notes, 2) short quizzes for feedback on

students' comprehension of material, 3) in-class writing, 4) demonstrations, 5) surveys or questionnaires, 6) self-assessment activities, 7) short discussion breaks, 8) brainstorming, and 9) case studies. Representatives of clientele groups and field professionals will be used to share first hand information about a topic, either in person or through the use of technology. As a guideline, 12 to 15 pages of high quality writing from each student will be expected. Four take-home essay assignments of 3 to 4 pages in length, spaced more or less equally over the first 12 weeks of the semester should be expected. This provides an opportunity for instructors to give each student meaningful feedback on the quality of exposition and depth and clarity of thought, with expectation of improvement in subsequent essays. A series of short quizzes will be interspersed throughout the semester to determine the students' knowledge of the technical perspectives introduced.

One hour each week students will meet in small discussion groups led by a faculty facilitator. The task in these sessions will be to develop the students's skills in listening, thinking, discussing and writing critically about the subjects which will be important influences on their lives. Problem solving activities and exercises in decision making will be integral parts of the discussion groups. The commonality of the discussion groups will be a common set of readings, the common lectures, and a general introductory workshop for faculty at the beginning of each semester. Specific assignments for specific discussion group meetings are expected. Quizzes, synopses or reflections on a reading selection and oral book reports will be the most generally used methods of assuring that the selections are being read.

RELATIONSHIPS TO OTHER COURSES

This is the first integrative problem solving course for students pursuing degree programs in the College of Agricultural Sciences and Natural Resources (CASNR). Although a small amount of the technical content appears similar to that presented in the various ecology courses taught in the College of Arts and Sciences, this course is unique in that it is designed to make learners more aware of the interdependencies among disciplines and to recognize that many problems are solved by understanding these interrelationships. Also, this course is designed for students with no college background in biology.

AgSci 103/NatRes 103 will relate to other courses in CASNR because when students recognize the interdependencies among disciplines and see how other courses relate to their own preferences, strengths, and objectives they should become more highly motivated to do well in the courses they select.

COURSE PROSPECTUS

- I. Course Introduction/Getting Started
- II. Global Perspectives of the Food and Agricultural Industry
- III. Natural Resource Perspective
- IV. Energy Budget Perspective
- IV. Environmental Perspective
- V. Economic Perspective
- VI. Social Perspective

SELECTED REFERENCES/READINGS

Readings will be the core resource for the course. The group of faculty facilitators identified to work with the course will put together the list of readings in the spring to support the discussion of topics/issues selected for the following year. It is envisioned that the list will change somewhat each year. By early summer, selections must be turned over to facilitators in the University Bookstore so that appropriate permissions for photocopying can be obtained and the book of readings printed.

It is expected that all small-discussion-group instructors will like some of the articles and all will not find certain articles useful. While the readings form part of the cohesive core of the course, no instructor should feel obligated to use all selections. Instructors will be encouraged to preview the selections and use those appropriate to what he/she wants to accomplish in the discussion groups. It is assumed that a majority of the articles will be used either for the common lecture or the small discussion groups lest students wonder why they bought the book.

References and articles will be solicited from the faculty in the disciplines.

Food, Agriculture, and Natural Resource Systems
AgSci 103/NatRes 103.

TENTATIVE COURSE OUTLINE-1994
Waldren and Schinstock-Facilitators

- I. Course Introduction/Getting Started
- II. Global Perspectives of the Food and Agricultural Industry
 - A. Agricultural commodity utilization
 - 1. human and animal food
 - 2. industrial uses
 - 3. aesthetic and microclimate uses
 - B. Competitiveness in international markets
 - 1. technology
 - 2. education
 - 3. policy
- III. Natural Resource Perspective
 - A. Trinity on which agriculture is dependent
 - 1. soil
 - 2. water
 - 3. climate
 - B. Diversity of societal interests
 - 1. goals and objectives of individual owners/occupants
 - 2. protection of ecologically sensitive and vital resources
 - 3. stewardship of resources
 - C. Sustainable use of natural resources
 - D. Effect of technology
- IV. Energy Budget Perspective
 - A. Original source of energy for the biosphere
 - B. Conventional sources of energy utilized to produce and process agricultural commodities
 - C. Alternative sources of energy
 - D. Energy flows
 - 1. crop production systems
 - 2. animal production systems
 - 3. food processing systems
 - E. Conservation of energy
- IV. Environmental Perspective
 - A. Physiological and ecological processes in production systems
 - 1. nutrient cycling
 - 2. water balance
 - 3. trophic relationships
 - 4. energy flows
 - 5. competition
 - 6. decomposition

- B. Sustainability of production systems
 - 1. natural recycled systems
 - 2. supplemental systems
- C. Protection of the biosphere
- D. Waste reduction and disposal
- E. Risk assessment
- F. Safe products and services

V. Economic Perspective

- A. Economic dimensions of Food, Agriculture, and Natural Resource Systems
- B. Economic relationships and externalities
- C. Role of government: local, state, and federal
- D. Role of agribusiness
- E. Future directions

VI. Social Perspective

- A. Family farms
- B. Rural communities
- C. Small industries
- D. Interaction between rural and urban systems
- E. Influence of technology
- F. Gender issues
- G. Consumer perspective
- H. Stability and sustainability relative to generations