RARITAN VALLEY COMMUNITY COLLEGE
ACADEMIC COURSE OUTLINE

ENVI-203: Organic Agriculture

I. Basic Course Information

A. Course Number and Title: ENVI-203: Organic Agriculture

B. New or Modified Course: New Course

C. Date of Proposal: Semester: Spring Year: 2011

D. Sponsoring Department: Science & Engineering

E. Semester Credit Hours: 3

F. Weekly Contact Hours: 5 Lecture: 2
Laboratory: 3

G. Prerequisites/Corequisites: ENVI-101 Introduction to Environmental Science or BIOL-150 Plants, Humans & the Environment, or permission of instructor

H. Laboratory Fees: Yes

I. Name and Telephone Number or E-Mail Address of Department Chair: Margaret Czerw mczerw@raritanval.edu

II. Catalog Description

Prerequisites: ENVI-101 Introduction to Environmental Science or BIOL-150 Plants, Humans & the Environment, or permission of instructor.
Principles and practices of organic crop production, from backyard gardens to small-scale farming. Students will be introduced to various methods and models of ecological agriculture and will develop practical knowledge and skills that will allow them to grow food organically. Labs provide hands-on experience in organic gardening and crop production, and visits to local organic farms and gardens.

III. Statement of Course Need

This course offers students the opportunity to develop a practical working knowledge of organic agriculture. Building on the general understanding of agriculture and its environmental effects gained from other introductory classes (ENVI-101 Intro to Environmental Studies and/or BIOL-150 Plants, Humans and the Environment), this class explores organic and other agricultural methods that seek to integrate ecological understanding and concerns into the process of growing food. Students will be exposed to various methods and models of ecological agriculture at different scales, by visiting and

working on the campus organic garden and other local farms and gardens. These tangible experiences will not only help students understand the real-world applications of the concepts learned in this and other classes, but will allow them to develop the skills needed to actually grow food organically for themselves and/or their community.

The course builds on the growing global awareness and interest in organic agriculture and other solutions to environmental, economic and health problems associated with modern industrial agricultural methods. Similar courses at other schools include "Principles of Organic Crop Production" (11:776:221) at Rutgers University and "Ecological Agriculture" (ENSC 327) at Ramapo College, and continuing education courses taught by the Northeast Organic Farming Association at Duke Farms in Hillsborough. The class will make RVCC one of only a few institutions of higher education in NJ, and the only community college, that provides opportunities for students and community members to learn more about the subject. Similar courses at other community colleges include "Intro to Sustainable Agriculture" (SUSAG 50) at Santa Rosa Community College, "Introduction to Sustainable Agriculture" (AGR 139) at Central Carolina Community College, and "Principles of Agroecology" (ENV 202) at Seattle Central Community College.

This class will help develop the Environmental curricula at RVCC, which currently has limited elective course offerings exclusive to the Environmental program (although others exist in Biology, Geology, etc.), and may be integrated into a Certificate Program in Organic Agriculture in the future.

The course will make use of the organic garden and potential markets on campus (e.g., cafeteria, community members), and will make use of other local resources, which includes the Northeast Organic Farming Association at Duke Farms, Hillsborough, local organic farms, restaurants and farm markets, urban agriculture and community gardens, local soil conservation and other professionals, and the rich agricultural landscapes and histories of Hunterdon and Somerset Counties.

IV. Place of Course in College Curriculum

A. Free Elective
B. This course satisfies an Environmental Science (lab) Elective for Environmental Science A.S. and an Environmental Science Elective for the Liberal Arts - Environmental Studies Option A.A..
C. Course transferability; for New Jersey schools go to the NJ Transfer website, www.njtransfer.org. For all other colleges and universities go their individual websites.

V. Outline of Course Content

A. Introduction to Organic Agriculture and Agroecology
   1. What Is Organic Agriculture?
   2. History and Philosophy of Organic Agriculture
   3. Why Conventional Agriculture Is Not Sustainable
   4. Principles of Organic Agriculture and Ecological Underpinnings
   5. Other Models of Sustainable Agriculture
      a. Traditional Polycultures
      b. Biodynamic Agriculture
      c. Permaculture
      d. Urban Agriculture/Community Gardens
      e. Natural Systems Agriculture

B. Ecological Characteristics of Crop Plants
   1. Ecological Roles of Plants
   2. Relationships to Pollinators
   3. Life Forms – Annuals and Perennials
   4. Companion Planting, Intercropping, Interplanting
   5. Managing Biodiversity/Genetic Resources

C. Soil Fertility/Nutrient Cycling
   1. Biological and Physical Properties of Soils
   2. Soil Development and Fertility
   3. Nutrient Cycles in Ecosystems
   4. Nutrient Management
   5. Erosion Control

D. Water Resources
   1. The Water Cycle
   2. Natural and Artificial Water Sources
   3. Water Management

E. Energy and Technical Resources
   1. History of Technological Development in Agriculture
   2. Modern Energy Inputs and Distribution Costs
   3. "Appropriate" Technology
   4. Renewable and Non-Renewable Energies
   5. Energy Management

F. Weed/Pest Management
   1. Pests, Weeds, and "Nuisance" Wildlife
   2. Physical Control Methods
   3. Biological Control Methods

G. Harvest Schedules and Methodologies

H. Season Extension and Four Season Gardens
I. USDA Organic and Other Certification Standards
J. Other Methods of Sustainable Agriculture
K. Livestock and Animal Husbandry
L. Economic Models and Markets
    1. Community Supported Agriculture
    2. Farm Stands/Farmers Markets
    3. Partnerships (e.g., Farm to School)
    4. Opportunities on Public/Private Land
    5. Organic Entrepreneurs
M. Farm and Garden Planning
N. Career and Funding Opportunities in Organic Agriculture

VI. Educational Goals and Learning Outcomes

A. **Educational Goals**

Students will:

1. develop an appreciation for the complex, interdependent relationships between agricultural activities and local environmental, economic and social conditions (GE-NJ 3);
2. design and develop agricultural practices compatible with local environmental, economic and social conditions (GE-NJ 9);
3. develop understanding of ecological underpinnings and practical applications of organic agriculture (GE-NJ 3).

B. **Learning Outcomes**

The student will be able to:

1. define organic agriculture;
2. demonstrate understanding of the ecological principles relevant to agriculture;
3. describe the relationship of environmental, economic and social conditions to sustainable agriculture;
4. describe the characteristics of a natural ecosystem, and how these compare to conventional and organic agroecosystems;
5. discuss the principles and strategies of organic agriculture;
6. evaluate the effects of soil fertility and other ecological variables on agricultural production;
7. describe the ecological roles of plants and their functional relationships to agroecosystems;
8. design systems to optimize the use of water, soil and other natural resources;
9. demonstrate a working understanding of organic agriculture in growing food;
10. identify career opportunities and objectives in organic agriculture.

VII. Modes of Teaching and Learning

Given the goals and outcomes described above, the following may be used in the course:

A. lecture/discussion
B. small-group work
C. computer-assisted instruction
D. guest speakers
E. laboratory and field work
F. student oral presentations
G. student collaboration
H. independent study

VIII. Papers, Examinations, and other Assessment Instruments

Given the outcomes described above, the following assessment methods may be used:

A. laboratory products
B. research papers
C. demonstrations
D. essays
E. journals

IX. Grade Determinants

The following may be used to determine the final grade:

A. research project
B. presentations
C. service learning
D. laboratory assignments
E. homework assignments
F. research paper

X. Texts and Materials

The following types of course materials may be used:

A. Articles from scientific journals and periodicals
B. Books and Book Reviews
C. Films and Documentaries
D. Internet Databases and Information Sources
E. Library Article Databases
F. Laboratory Equipment

(Please Note: The course outline is intended only as a guide to course content and resources. Do not purchase textbooks based on this outline. The RVCC Bookstore is the sole resource for the most up-to-date information about textbooks.)

XI. Resources

A. RVCC van and/or bus rental;
B. Library databases and other library resources;

C. RVCC organic garden, orchard and greenhouse;
D. Greenhouse, garden and related supplies;
E. Literature, films and documentaries from RVCC Science Library;