Discipline: Agriculture	Sub-discipline: Sustainable Agriculture
General Course Title: **Introduction to Sustainable Food Systems**	Min. Units: **3 Semester**
	Proposed Suffix:

Course Description:
Introductory study of social sustainability within the US food and agricultural systems, tracing the historical social forces that have shaped the direction of development of the US agri-food system. Principles of agricultural sustainability relating to existing international models of sustainable agri-food systems. Current social, political and economic obstacles to the advancement of more socially and environmentally sustainable food systems and alternatives will also be discussed.

Required Prerequisites or Co-Requisites[1]

Advisories/Recommended Preparation[2]

Course Objectives: *At the conclusion of this course, the student should be able to:*

- Explain the historical social influences that have shaped the direction of development of the US agri-food system.
- Describe the major demographic changes that have taken place in US agriculture from 1900 – 2000.
- Explain the concept of a food system and describe the general structure and organization of the US agri-food system.
- List and describe the various social issues/critiques associated with the industrialization of the US agriculture and food system.
- Describe the known and potential environmental quality and human health risks associated with technological innovations and land use practices common in modern US agriculture.
- Define and describe the principles of social sustainability in agriculture.
- Describe the current economic and public policy obstacles to the advancement of more socially and environmentally sustainable food systems.
- List and describe current strategies/initiatives being defined for directing the development of agriculture toward greater social and environmental sustainability.

Course Content:
1. History and Development of the US Agri-food Systems

A. Demographic Trends in US Agriculture (1900 – 2000) (Gardener 2002; US Census of Agriculture (http://www.nass.usda.gov/census/):
   1. Number of farms and farm size (Gardner 2002, 51, 58-59)
   2. Farm population (Gardner 2002, 93, 99)
   3. Market share of large vs. small farms (Gardner 2002, 69)
   4. Increase in part-time farmers and off-farm employment
   5. Increasing use of labor-saving technologies (Gardner 2002, 13-17)
   6. Increase in yields and productivity (Gardner 2002, 20-22, 44)
   7. Increase in purchased off-farm inputs (Gardner 2002, 63; Cochrane 1993, 130-131)
   8. Stagnation of net farm income (Gardner 2002, 75)
   9. Share of food dollar to farmers (Gardner 2002, 129, 155; Cochrane 1993, 135)
   10. Concentration in agricultural input firms (http://www.foodcircles.missouri.edu/consol.htm)

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[1] Prerequisite or co-requisite course need to be validated at the CCC level in accordance with Title 5 regulations; co-requisites for CCCs are the linked courses that must be taken at the same time as the primary or target course.
[2] Advisories or recommended preparation will not require validation but are recommendations to be considered by the student prior to enrolling.

11. Concentration in food processing firms (http://www.foodcircles.missouri.edu/consol.htm)
12. Concentration in food retail firms (http://www.foodcircles.missouri.edu/consol.htm)

B. Historical Social Forces Shaping the Direction of Development of the US Agri-Food System:
   1. Early Land Use and Settlement Patterns and the Expansion of Agriculture in the US (see Cochrane 1993, chps. 4-5, 9; Hurt 1994)
   2. Early Agricultural Labor (Cochrane 1993):
      a. The Role of Slavery and Early US Agriculture
      b. US Agriculture Policy, Immigration and the US Labor Market
      c. Status and Political Power of Immigrant Agricultural Labor
   3. The Development of the Agricultural Research, Education and Extension Complex (see Cochrane 1993 chp. 7; Gardner 2002, pg.183)
      a. Federal Acts Directing the Industrialization of US Agriculture
         i. US Department of Agriculture (1860) devoted to improvement of agriculture based on scientific inquiry
         ii. Morrill Act (1862): established Land Grant Colleges of Agriculture to conduct research and development
         iii. Hatch Act (1887): established agricultural experiment stations
         iv. Smith-Lever Act (1914): established cooperative extension service to diffuse innovations to farmers
         v. Reclamation Act (1902): Irrigation and hydro-power projects in 17 Western States
         vi. Budgetary allocations to the US agriculture and research complex (1860-2000) (see Gardner 2002, 183-184)
      b. Technological Innovations and the Industrialization of US Agriculture (see Matson 1997; Cochrane 1993 pgs 122-150 and 189-205):
         i. Mechanization
         ii. Irrigation
         iii. Refrigeration
         iv. Synthetic Pest Control Agents
         v. Synthetic N-P-K Fertilizers
      c. The Development of Physical Infrastructure (Cochrane 1993 chp. 11)
         i. Transportation
         ii. Irrigation/Water Resources
         iii. Electricity
      d. Agricultural Development and Environmental Policy (Cochrane 1993 chp. 14)
      e. Economic and Structural Forces Influencing the Industrialization of the US Food and Agriculture System (Cochrne 1993; Heffernan 1998, Goodman 1991; http://www.foodcircles.missouri.edu/consol.htm; Howard 2003)
         i. Market Competition
         ii. Economies of Scale
         iii. Adoption of Technological Innovations (above) Allowing Increases in the Scale of Production
         iv. Prohibitive Costs Associated with Capital Intensive Technological Innovations
         v. Availability of Capital and Crop Insurance for Small Farms
         vi. Specialization Along Commodity Chain (from Production to Retail)

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         vii. Increased Private/Corporate Ownership of Agricultural Inputs, Food Processing and Retail Sales Sectors

viii. Increased Proportion of the Food Dollar Going to Agricultural Inputs, Food Processing and Retail Sales Sectors
ix. Decreasing Share of Food Dollar Going to Producer/Farmer
x. The increasing role of private capital in U.S. agriculture controlling input and output sector
xi. Farmers are Caught Between a Monopoly-controlled Input and Output Sectors of the Agricultural Economy (Lobao 1990: 27)
xii. Vertical and Horizontal Integration within Agri-food Industry (Howard 2003)
xiii. US Agricultural Policies Favoring Large Farms: Federal farm subsidies to largest producers (USDA 1998, pages 14-23)

f. Outcomes of the Industrialization of the US Food and Agricultural System (Gardener 2002; Cochrane 1993 ch 8; Friedmann 1993; Lobao 1990 ch 1; Danbom 1995 ch 11; Howard 2003; Lyson and Raymer 2000)
i. Decrease in Numbers of Farms
ii. Increased Average Farm Size
iii. Simplification of Agroecosystems
iv. Loss of Small Farm Viability
v. Consolidation/Concentration throughout Food and Agriculture System
vi. Chronic Overproduction, Surpluses and Depressed Crop Prices Paid to Growers
vii. Low Retail Food Prices Paid by Consumers
viii. Externalized Social and Environmental Cost of Production

2. The Structure and Organization of the US Agri-food System Today
A. The US Agriculture and Food System Today (Heffernan 1998)
The Food System Concept
The Structure and Organization of the Modern US Agri-food System
a. Gene and seed companies
b. Agricultural input suppliers
c. Producers
d. Agricultural labor
e. Transportation and finance
f. Research
g. Government: Regulatory and legislative
h. Public interest organizations
i. Buyer/distributors
j. Food inports
k. Food processors
l. Retail
m. Consumers
3. Differences in Power of Actors in the Food System

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3. Social and Environmental Issues in Modern Agriculture

A. Social Issues in the US Agri-food System
1. Impacts of Agricultural Industrialization on Rural Communities (Goldschmidt, 1978; Welsh and Lyson, 2002)
a. Income Distribution

b. Civic Participation
c. Quality of Education
d. Impacts to Local Economy

2. Consumer distancing from agriculture and the resultant sense of responsibility for associated social and ecological consequences (Kloppenburg 1996)
3. Loss in Farm Numbers/Small Farm Economic Viability (Allen 1994; Gardener 2002; US Census of Agriculture: http://www.nass.usda.gov/census/)
4. Globalization of Food and Agriculture (Norberg-Hodge et al, 2002; Heffernan et al 1999 pages 58-86)
5. Concentration of Ownership/Consolidation in Food and Agriculture (Allen 1994; Heffernan and Constance 1999; Heffernan and Gronski 1999; PANUPS 2001)
6. Domestic Hunger/Food Insecurity (Allen 1994; http://www.worldhungeryear.org/fslc/)
7. Loss of Agricultural Biodiversity (Fowler and Mooney1990; http://genetics.nbii.gov/Agriculture.html; http://www.eseap.cipotato.org/upward/Abstract/Agrobio-sourcebook.htm; http://www.fao.org/biodiversity/index.asp;)
8. Intellectual Property Rights and the Patenting of Life Forms (Shiva 2001)
9. Agricultural Labor: (Allen 1994; Martin 1989; Peck 1989; Villarejo and Runsten 1993; Wells 1996; McWillams 2000)
    a. The California Agriculture Labor Market Today
    b. Living and Working Conditions for Agricultural Laborers
    c. Health and Well-being of Agricultural Labor
    d. Impact to Communities of Origin of Immigrant Labor
10. Federal Funding for Natural and Social Science Research on Sustainable Food and Agricultural Systems (Allen 1994; Snooby 2003)

B. Environmental Quality and Human Health Risks in Modern Agriculture (Altieri, 2001; Altieri 2004; Conway and Pretty, 1991; Gliessman, 1998; Matson et al 1997; Tilman 1999: Keegley 1999, 2000; Reeves 1999; Letourneau and Burrows 2001)
1. Agricultural Nutrients
2. Synthetic Pest Control Agents
3. Tillage and Soil Quality
4. Water Use in Agriculture
5. Monoculture Production Systems
6. Genetically Engineered Organisms in Agriculture
7. Confined Feeding Operation
8. Energy Use in Agriculture
9. Impacts to wild biodiversity

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4. Sustainable Agriculture

A. Historical Social Movements In Opposition to the Industrialization of the US Agriculture (Danbom1997; Constance et al 2003; Allen 2004; Allen et al 2002; McConnel 1969)
1. Civil Rights the United Farm Workers
2. The Environmental Movement
3. The World Food Crisis

B. Sustainable Agriculture: A Natural Science Approach (Earles 2002)
1. Soil Fertility in Sustainable Agriculture
2. Pest Management

C. Social Sustainability in Agriculture (Allen 1991; Allen 1993; Allen 1994; Norburg Hodge 2000)
   1. Community Food Security (http://www.worldhungeryear.org/fslc/)
   2. Economic Viability of Small-Scale Agriculture
   3. Economic Viability of Regional Food Systems
   4. Equitable Distribution of the Proceeds Generated from Agriculture
   5. Living Wages and Healthy Working Conditions for Agricultural Workers (see: http://www.newfarm.org/features/0804/worker/index.shtml)
   6. Maintenance of Environmental Quality

D. The Values Implicit in Sustainable Agriculture (Allen and Sachs 1991; see also: The Journal of Agriculture and Human Values; The Journal of Agriculture and Environmental Ethics)
   1. Social Values
   2. Environmental values

E. International Models of Sustainable Food Systems (IFOAM 2004; Norberg-Hodge et al 2000; Norberg-Hodge et al 2002)
   1. European Union
   2. Latin America
   3. Asia
   4. Australia/Oceana

G. Current Social, Economic and Public Policy Obstacles to the Advancement of Socially And Environmentally Sustainable Food Systems
   1. Lack of Consumer Awareness of Externalized Costs of Production in Agriculture
   2. Consolidation in Agriculture and the Economic Disadvantage of Small-Scale Growers
   3. The Absence of Federal Incentives Program for the Adoption of Sustainable Farming Practices
   4. US Environmental Protection Agency and Pesticide Regulation (see: MacIntyre 1987; http://www.epa.gov/opppsps1/fqpa/; http://www.ecologic-ipm.com/)
   5. The Absence of Social Justice Standards and Product Labeling Program in Agriculture (Howard, Phil. 2005)
   6. Lack of Funding for Research in Sustainable Agriculture and Food Systems (Allen 1994; Snooby 2003)
   7. Prohibitive Land Tenure Costs (Miles and Brown 2005)

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5. Alternative Food Systems Initiatives

A. Alternative Food System Initiatives Today (Allen 2004; Allen et al 2002; Miles and Brown 2005)
   1. Certified Organic and the USDA National Organic Program (Kuepper 2002 a; Kuepper 2002 b)
   2. The Growth of IPM and the Organic Agriculture Industry (Klonsky 2004; Howard, 2003; Sweazy and Broome 2000; Guthman 2005)
   3. Fair Trade Standards (see: http://www.fairtrade.net/index.html)
   4. Regional Agriculture Development Initiatives (Allen 2004; Miles and Brown 2005
   5. Alternative Marketing Strategies for Small-Scale Agriculture (Allen 2004; Miles and Brown 2005)
   6. Community Supported Agriculture
   7. Farmers Markets and Roadside Stands
   8. Institutional Buying relationships
   9. Collaborative Marketing Groups and Cooperatives

10. Alternative Land Tenure Arrangements

B. Directions for Change in the US Agri-food System:
   1. The current food system is changeable and reflects dominant social values
   2. Public Education and the Development of Consumer Support for Sustainable Agriculture and Food Systems
   3. Changes in Agriculture Education
   4. Public Policy and Funding for Research in Sustainable Food Systems and Agricultural Production Practices
   5. Federal and Stated Pesticide Regulation
   6. Federal Funding to Growers for the Adoption of Conservation Farming Practices
   7. The Establishment of a Living Wage Standards for Agricultural Workers
   8. Enforcement of Legal Limitations on Consolidation in Food and Agriculture
   9. Land Reform

Laboratory Activities: Individual Laboratory Activities are designed to support course objectives.

Methods of Evaluation: Lecture	Methods of Evaluation: Laboratory
Comprehensive Quizzes and Exams	Laboratory Skill Validation by Observation
Written Critical Thinking Scenarios	Laboratory Projects and Reports
Problem Analysis and Solution	Laboratory Research Projects and Reports
Research and Term Papers	Laboratory Skill Practicum Exams

Typical Textbooks, Manuals, or Other Support Materials

An Introduction to Sustainable Food Systems

Statewide Articulation: Transfers as lower division elective

FDRG Lead Signature: Date:

Mark E. Bender, PhD CSU Stanislaus

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