Common Food Systems Requirements (common to all tracks):

A. Integrated Food Systems Core 15 credits

- FDSY 1016W Growing Food & Building Community: Urban Agriculture in the Twin Cities (3 cr, F)
- or AGRO 1660W First-Year Colloquium/Experience in Agroecosystems (2 cr, F/S)
- FDSY 2101 Plant Production Systems (3 cr, S) prereq one of: Biol 1001, 1009, Hort 1001, Agro 1101
- BBE 3201 Sustainability of Food Systems: A Life Cycle Perspective (3 cr, F/S/Su) online
- APEC 3202 An Introduction to the Food System: Analysis, Management and Design (3 cr, F) IL prereq ApEc 1101 or Econ 1101
- BSE 4101 Holistic Approaches to Improving Food System Sustainability (3 cr, S)
  prereq ApEc 3202, BSE 301, FDSY 2101
- CFAN 3096 Making the most of your Internship (1 cr, S) prereq prior secured internship
  or HORT 4096W Professional Experience Program: Internship (2 cr, F/S)
  or AGRO 4096W Professional Experience Program: Internship (2 cr, F/S)

B. Communications 11 credits

- WRIT 1301 University Writing (4 cr, F/S)
- AFEE 2421 Communication for Agriculture, Food, and the Environment (3 cr, F/S)
  or COMM 1101 Introduction to Public Speaking (3 cr, F/S)
- WRIT 3562W Technical and Professional Writing (4 cr, F/S/Su)

C. Physical and Biological Sciences 11 credits

- HORT 1001 Plant Propagation (4 cr, F/S)
  or BIOL 1009 General Biology (4 cr, F/S)
- FSCN 1112 Principles of Nutrition (3 cr, F/S)
- CHEM 1061 Chemical Principles I and
  CHEM 1065 Chemical Principles I Lab (4 cr, F/S)
  or CHEM 1015 Introductory Chemistry: Lecture
  and CHEM 1017 Introductory Chemistry: Laboratory (4 cr, F/S)

D. Mathematical Thinking 3 credits

- MATH 1031 College Algebra and Probability (F/S)
  or MATH 1051 Pre-calculus 1 (F/S)

E. Social Sciences 4 credits

- APEC 1101 Principles of Microeconomics (GP, SS) (F/S)
  or ECON 1101 Principles of Microeconomics (GP, SS) (F/S)

F. Liberal Education Core Requirements not filled by major courses 9 credits

- Arts and Humanities (3 cr)
- Literature (3 cr)
- Historical Perspective (3 cr)
G. Themes of Liberal Education (complete 3 besides GP) 12 credits
   ___ CIV = Civic Life and Ethics (3 cr)
   ___ DSJ = Diversity and Social Justice in the United States (3 cr)
   ___ E = Environment (3 cr)
   __ GP = Global Perspectives (3 cr) satisfied with BBE 3201
   ___ TS = Technology & Society (3 cr)

I. Interdisciplinary Learning (IL) requirement satisfied with ApEc 3202 0 additional credits
J. Experiential Learning (EL) requirement satisfied with Hort 4096W, Agro 4096W or CFAN 3096 0 additional credits

Total Common Food Systems Requirements: 65 credits

Food Systems Tracks:
Organic and Local Food Production Track

Required courses:
   ___ APS 5103 Sustainable Agricultural Concepts (3 cr, F) 
      prereq Biol 1001, 1009 or Hort 1001
   ___ CFAN 2333 Insects, Microbes and Plants (3 cr, F)
   ___ HORT 1001 Plant Propagation (4 cr, F/S) Note: If already taken for Biology requirement, take 10 elective credits below
   ___ HORT 2100 Agricultural Biochemistry (3 cr, F) prereq Chem 1015 or 1061
   ___ PLSC 3005W Plant Physiology (4 cr, S) 
      prereq Hort 1001 or BIOL 1009, Hort 2100 or BioC 3021
   ___ HORT 3131 Student Organic Farm Planning, Growing, Marketing (3 cr, F) 
      prereq Hort 1001 or BIOL 1001 or BIOL 1009
   ___ SOIL 2125 Basic Soil ScienceE (4 cr, F/S) prereq Chem 1015 or 1061

Choose at least 6 credits (or at least 10 credits if HORT 1001 taken as Biology requirement) from the following list:
   ___ ESPM 3108 Ecology of Managed Systems (3 cr, F) prereq BIOL 1001 or 1009 or HORT 1001
   ___ FDSY 2102 Diversity of Agricultural Production Systems (3 cr, summer in Morris)
   ___ GCC 3001 Grand Challenge: Can We Feed the World Without Destroying It? (3 cr, F)
   ___ GCC 3017 Grand Challenge: World Food Problems: Agronomics, Economics & HungerGP,ID (3 cr, F)
   ___ HORT 1015 Woody and Herbaceous Plants (4 cr, F)
   ___ HORT 4110 Spring Flowering Bulbs (1 cr, odd Springs) prereq Hort 1015
   ___ HORT 4111 Prairie Perennials and Grasses (1 cr, odd Falls) prereq Hort 1015
   ___ HORT 4112 Flowering Trees and Shrubs (1 cr, periodic Springs) prereq Hort 1001, 1015
   ___ HORT 4113 Strange and Unusual Plants (1 cr, even Springs)
   ___ HORT 4141W Scheduling Crops for Protected Environments (4 cr, F) prereq Hort 1001 or 1015
   ___ HORT 4071W Applications of Biotechnology to Plant Improvement (4 cr, F) 
      prereq Hort 1009 or equiv
   ___ HORT 4461 Horticultural Marketing (3 cr,F) prereq APEC 1101 or ECON 1101
   ___ HORT 4601 Aquaponics: Integrated Fish and Plant Food Systems (4 cr, S) 
      prereq Biol 1009 or equiv, Chem 1015&1017 or 1061&1065

Continued on next page
### Agroecology Track

**Required courses:**

- **SOIL 2125** Basic Soil Science\(^e\) (4 cr, F/S) prereq Chem 1015 or 1061
- **HORT 2100** Agricultural Biochemistry (3 cr, F) prereq Chem 1015 or 1061
  or **BIOC 3021** Biochemistry (3cr, F/S) prerequisite Chem 1061/1065, 1062/1066, 2301, Biol 1009
- **PLSC 3005W** Plant Physiology (4cr, S)
  prerequisite Hort 1001 or Biol 1009, Hort 2100 or BIOC 3021
- **ESPM 3108** Ecology of Managed Systems\(^e\) (3 cr, F) prerequisite Biol 1001 or Biol 1009 or Hort 1001

*Choose at least 16 credits from the following, of which at least 9 credits must be upper division (3xxx or above):*

- **AGRO 2501** Plant Identification for Urban and Rural Landscapes (1 cr, F)
  prerequisite Biol 1009 or equiv
- **AGRO 4505** Biology, Ecology, and Management of Invasive Plants (3 cr, S)
  prerequisite Agro 4005, Biol 3002 or equiv, Soil 2125, Agro 2501 or Hort 1001
- **AGRO 4888** Issues in Sustainable Agriculture (2 cr, F)
  prerequisite Agro 1103, Soil 2125 or equiv
- **CFAN 2333** Insects, Microbes and Plants\(^TS\) (3 cr, F)
- **CHEM 2301** Organic Chemistry I (3 cr, F/S) prerequisite Chem 1062/1066
- **ENT 5341** Biological Control of Insects and Weeds (3 cr, S)
  prerequisite Ent 3001, Biol 1009, EEB 3001
- **ESPM 5071** Ecological Restoration (4 cr, F)
  prerequisite one college course in ecology, one college course in plant science or botany
- **GCC 3001** Grand Challenge: Can We Feed the World Without Destroying It?\(^\text{GP,ID}\) (3cr, F)
- **GCC 3017** Grand Challenge: World Food Problems: Agronomics, Economics & Hunger\(^\text{GP,ID}\) (3 cr, F)
- **HORT 1014** Edible Landscapes\(^TS\) (3 cr, F/S)

**Credits in Agroecology Track:** 30 credits

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**Credits in Organic and Local Food Production Track:** 30 credits

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Food Systems – last updated August 2017
Consumers and Markets Track

Select at least 30 credits from the following, of which at least 16 must be upper division (3xxx or above):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Term(s)</th>
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<tbody>
<tr>
<td>ANSC 1511</td>
<td>Food Animal Products for Consumers</td>
<td>3 cr</td>
<td>F</td>
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<tr>
<td>APEC 3071</td>
<td>Microeconomics of International Development</td>
<td>3 cr</td>
<td>F</td>
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<tr>
<td>APEC 3411</td>
<td>Commodity Marketing</td>
<td>3 cr</td>
<td>F</td>
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<tr>
<td>APEC 3451</td>
<td>Food and Agricultural Sales</td>
<td>3 cr</td>
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<td>APEC 3501</td>
<td>Agribusiness Finance</td>
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<td>Entrepreneurship Fund. for Value-Added Rural Business</td>
<td>3 cr</td>
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<td>APEC 3811</td>
<td>Principles of Farm Management</td>
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<td>APEC 3840</td>
<td>Cooperative Organization</td>
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<td>Food Marketing Economics^CIV</td>
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<td>APEC/HORT 4461</td>
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<td>Futures and Options Markets</td>
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<tr>
<td>APEC 4821W</td>
<td>Business Economics &amp; Strategy</td>
<td>3 cr</td>
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<td>FSCN 1011</td>
<td>Science of Food and Cooking</td>
<td>4 cr</td>
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<td>FSCN 1102</td>
<td>Food: Safety Risks and Technology^CIV</td>
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<td>FSCN 2001</td>
<td>Healthy Foods Healthy Lives: A Food Syst. Appr. to Cooking</td>
<td>3 cr</td>
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<td>FSCN 2021</td>
<td>Introductory Microbiology</td>
<td>4 cr</td>
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<td>FSCN 3102</td>
<td>Introduction to Food Science</td>
<td>3 cr</td>
<td>F</td>
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<tr>
<td>FSCN 3612</td>
<td>Life Cycle Nutrition</td>
<td>3 cr</td>
<td>F</td>
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<tr>
<td>FSCN 3615</td>
<td>Sociocultural Aspects of Food, Nutrition and Health^GP</td>
<td>3 cr</td>
<td>S</td>
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<tr>
<td>FSCN 4131</td>
<td>Food Quality</td>
<td>3 cr</td>
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<td>Grand Challenge: Can We Feed the World Without Destroying It?^E</td>
<td>3 cr</td>
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<td>GCC 3017</td>
<td>Grand Challenge: World Food Problems: Agronomics, Economics &amp; Hunger^GP,ID</td>
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<td>F</td>
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<tr>
<td>HORT 1031</td>
<td>Vines and Wines: Introduction to Viticulture and Enology</td>
<td>3 cr</td>
<td>F</td>
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</table>

Credits in Consumers and Markets Track: 30 credits

Individualized Track

Students choosing to follow this track will identify, in consultation and with the approval of a faculty mentor, a track made up of a minimum of 30 credits where at least 16 credits are upper division (3xxx or higher). The track will address the interests and ambitions of the student and will be consistent with the learning outcomes of the Food Systems major.

Credits in Individualized Track: 30 credits