AN INTRODUCTION TO THE FOOD SYSTEM: Analysis, Management and Design
ApEc 3202, Spring 2014

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Office Hours        Tuesday and Wednesday 11:00 a.m. – 12:30 p.m. or by appointment

Class Meetings       TTh 1:30-2:45  Green Hall 110

Course Web Site     http://myu.umn.edu or http://ay13.moodle.umn.edu

Prerequisites        ApEc/Econ 1101

Course Description
This course uses systems thinking concepts to introduce students to the food system and uses investigation of the food system to introduce students to systems thinking concepts. Topics include: system concepts; historical evolution of Minnesota’s food system; analysis, management, and design of the contemporary food system. Learning activities include development of simple systems models of physical, biological, economic, and social processes within the food system and exploration of problems in the contemporary food system from a multidisciplinary perspective.

Course Objectives
1. Develop a thorough understanding of the food system as an interconnected set of processes that nourish human populations and provide livelihood and satisfaction to the people who participate in it.

2. Develop an understanding of basic systems thinking concepts and an ability to apply them in the analysis, management, and design of the food system.

3. Develop skills in applying quantitative and qualitative analysis to complex problems.

Required Text:

Recommended Text:
**Student Learning Outcomes**
Faculty, collegiate and central administrators, and staff at the University of Minnesota-Twin Cities, working together in the Council for Enhancing Student Learning since 2002, developed a set of student learning outcomes that define what students will be able to do when they have completed any undergraduate degree, regardless of major, at the University of Minnesota Twin Cities.

At the time of receiving a bachelor’s degree, students:

- **Can identify, define, and solve problems**
- **Can locate and critically evaluate information**
- **Have mastered a body of knowledge and a mode of inquiry**
- **Understand diverse philosophies and cultures within and across societies**
- **Can communicate effectively**
- **Understand the role of creativity, innovation, discovery, and expression across disciplines**
- **Have acquired skills for effective citizenship and life-long learning.**

This course addresses all seven of these learning outcomes but places particular emphasis on those in bold typeface.

**Learning Activities**
The course will have two lecture sessions each week. Students will work in small groups throughout the course, working together on in-class exercises and on a food system analysis-management-design project in the last segment of the course. This project will include three short written reports and a presentation. Students will work individually on two short paper assignments focusing on (i) state-level food system indicators and (ii) food system history, as well as on two problem sets. A grading rubric will be provided for each writing assignment. Written reports will be evaluated not only for the quality of analysis but also for clarity of writing and attractiveness of layout. There will also be a midterm exam and a final exam.
COURSE POLICIES

Grading
The University has established the following grading standards:

A: achievement that is outstanding relative to the level necessary to meet course requirements.

B: achievement that is significantly above the level necessary to meet course requirements.

C: achievement that meets the course requirements in every respect.

D: achievement that is worthy of credit even though it fails to meet fully the course requirements.

S: achievement that is satisfactory, which is equivalent to a C- or better.

F (or N): represents failure (or no credit) and signifies that the work was either (1) completed but at a level of achievement that is not worthy of credit or (2) was not completed and there was no agreement between the instructor and the student that the student would be awarded an I.

I (Incomplete): assigned at the discretion of the instructor when, due to extraordinary circumstances, e.g., hospitalization, a student is prevented from completing the work of the course on time. Requires a written agreement between instructor and student.

Your course grade in this course will be based on a weighted average of grades on a variety of assignments and exams. All assignments and exams will be graded on a 100 point scale. Weights for categories of assignments, in-class exercises, and exams are:

<table>
<thead>
<tr>
<th>Category</th>
<th>% of course grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>short papers (2)</td>
<td>20</td>
</tr>
<tr>
<td>problem sets (2)</td>
<td>10</td>
</tr>
<tr>
<td>term project</td>
<td></td>
</tr>
<tr>
<td>– analysis</td>
<td>15</td>
</tr>
<tr>
<td>– management</td>
<td>10</td>
</tr>
<tr>
<td>– design</td>
<td>15</td>
</tr>
<tr>
<td>– presentation</td>
<td>5</td>
</tr>
<tr>
<td>midterm exam</td>
<td>10</td>
</tr>
<tr>
<td>final exam</td>
<td>15</td>
</tr>
</tbody>
</table>

Short papers and problem sets will focus on the application of concepts and methods presented in the course. A due date will be given for each assignment. Except in cases of a documented health or family-related excuse, credit for late assignments will be reduced by 50 percent. Late submissions will not be accepted after an assignment has been returned and/or discussed in class.

Exams will be comprised of short essay questions and problems. Make-up exams will be provided only after documented proof of illness or emergency is provided.
Weighted average ranges for final course grades are given in the following table:

<table>
<thead>
<tr>
<th>Weighted Average</th>
<th>Final Grade</th>
<th>Weighted Average</th>
<th>Final Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>93-100</td>
<td>A</td>
<td>73-76.9</td>
<td>C</td>
</tr>
<tr>
<td>90-92.9</td>
<td>A-</td>
<td>70-72.9</td>
<td>C-</td>
</tr>
<tr>
<td>87-89.9</td>
<td>B+</td>
<td>67-69.9</td>
<td>D+</td>
</tr>
<tr>
<td>83-86.9</td>
<td>B</td>
<td>60-66.9</td>
<td>D</td>
</tr>
<tr>
<td>80-82.9</td>
<td>B-</td>
<td>0-59.9</td>
<td>F</td>
</tr>
<tr>
<td>77-89.9</td>
<td>C+</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Minimum scores required for each grade level may be adjusted downward, but the minimum weighted average for a D will not be below 50.

Students are responsible for all information disseminated in class and all course requirements, including deadlines and examination. A student is not permitted to submit extra work in an attempt to raise his or her grade, unless the instructor announces that such opportunities will be afforded to all students.

**Student Conduct Code**

The University seeks an environment that promotes academic achievement and integrity, that is protective of free inquiry, and that serves the educational mission of the University. Similarly, the University seeks a community that is free from violence, threats, and intimidation; that is respectful of the rights, opportunities, and welfare of students, faculty, staff, and guests of the University; and that does not threaten the physical or mental health or safety of members of the University community.

As a student at the University you are expected adhere to Board of Regents Policy: *Student Conduct Code*. To review the Student Conduct Code, please see: [http://www1.umn.edu/regents/policies/academic/Student_Conduct_Code.html](http://www1.umn.edu/regents/policies/academic/Student_Conduct_Code.html).

Note that the conduct code specifically addresses disruptive classroom conduct, which means "engaging in behavior that substantially or repeatedly interrupts either the instructor’s ability to teach or student learning. The classroom extends to any setting where a student is engaged in work toward academic credit or satisfaction of program-based requirements or related activities."

**Use of Personal Electronic Devices in the Classroom:**

Using personal electronic devices in the classroom setting can hinder instruction and learning, not only for the student using the device but also for other students in the class. To this end, the University establishes the right of each faculty member to determine if and how personal electronic devices are allowed to be used in the classroom. For complete information, please reference: [http://policy.umn.edu/Policies/Education/Education/STUDENTRESP.html](http://policy.umn.edu/Policies/Education/Education/STUDENTRESP.html).

**Scholastic Dishonesty**

You are expected to do your own academic work and cite sources as necessary. Failing to do so is scholastic dishonesty. Scholastic dishonesty means plagiarizing; cheating on assignments or examinations; engaging in unauthorized collaboration on academic work; taking, acquiring, or using test materials without faculty permission; submitting false or incomplete records of academic achievement; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement; altering, forging, or misusing a University academic record; or fabricating or falsifying data, research procedures, or data analysis. (Student Conduct Code: [http://www1.umn.edu/regents/policies/academic/Student_Conduct_Code.html](http://www1.umn.edu/regents/policies/academic/Student_Conduct_Code.html)) If it is determined that
a student has cheated, he or she may be given an "F" or an "N" for the course, and may face additional sanctions from the University. For additional information, please see: http://policy.umn.edu/Policies/Education/Education/INSTRUCTORRESP.html.

The Office for Student Conduct and Academic Integrity has compiled a useful list of Frequently Asked Questions pertaining to scholastic dishonesty: http://www1.umn.edu/oscai/integrity/student/index.html. If you have additional questions, please clarify with your instructor for the course. Your instructor can respond to your specific questions regarding what would constitute scholastic dishonesty in the context of a particular class-e.g., whether collaboration on assignments is permitted, requirements and methods for citing sources, if electronic aids are permitted or prohibited during an exam.

**Makeup Work for Legitimate Absences**
Students will not be penalized for absence during the semester due to unavoidable or legitimate circumstances. Such circumstances include verified illness, participation in intercollegiate athletic events, subpoenas, jury duty, military service, bereavement, and religious observances. Such circumstances do not include voting in local, state, or national elections. For complete information, please see: http://policy.umn.edu/Policies/Education/Education/MAKЕUPWORK.html.

**Sexual Harassment**
"Sexual harassment" means unwelcome sexual advances, requests for sexual favors, and/or other verbal or physical conduct of a sexual nature. Such conduct has the purpose or effect of unreasonably interfering with an individual's work or academic performance or creating an intimidating, hostile, or offensive working or academic environment in any University activity or program. Such behavior is not acceptable in the University setting. For additional information, please consult Board of Regents Policy: http://www1.umn.edu/regents/policies/humanresources/SexHarassment.html

**Equity, Diversity, Equal Opportunity, and Affirmative Action**
The University will provide equal access to and opportunity in its programs and facilities, without regard to race, color, creed, religion, national origin, gender, age, marital status, disability, public assistance status, veteran status, sexual orientation, gender identity, or gender expression. For more information, please consult Board of Regents Policy: http://www1.umn.edu/regents/policies/administrative/Equity_Diversity_EO-AA.html.

**Disability Accommodations**
The University is committed to providing quality education to all students regardless of ability. Determining appropriate disability accommodations is a collaborative process. You as a student must register with Disability Services and provide documentation of your disability. The course instructor must provide information regarding a course's content, methods, and essential components. The combination of this information will be used by Disability Services to determine appropriate accommodations for a particular student in a particular course. For more information, please reference Disability Services: http://ds.umn.edu/student-services.html.

**Mental Health and Stress Management**
As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance and may reduce your ability to participate in daily activities. University of Minnesota services are available to assist you. You can learn more about the broad range of confidential mental health services available on campus via the Student Mental Health Website: http://www.mentalhealth.umn.edu.
Academic Freedom and Responsibility

Academic freedom is a cornerstone of the University. Within the scope and content of the course as defined by the instructor, it includes the freedom to discuss relevant matters in the classroom. Along with this freedom comes responsibility. Students are encouraged to develop the capacity for critical judgment and to engage in a sustained and independent search for truth. Students are free to take reasoned exception to the views offered in any course of study and to reserve judgment about matters of opinion, but they are responsible for learning the content of any course of study for which they are enrolled.*

Reports of concerns about academic freedom are taken seriously, and there are individuals and offices available for help. Contact the instructor, the Department Chair, your adviser, the associate dean of the college, or the Vice Provost for Faculty and Academic Affairs in the Office of the Provost.

Student Conflict Resolution

Inquiries regarding any changes of grade should be directed to the instructor of the course. If you disagree with the instructor’s decision, you may wish to contact the Student Conflict Resolution Center, which offers informal and formal conflict resolution services to resolve students' campus-based problems and concerns. The address is: SCRC, 254 Appleby Hall, (612) 624-7272, sos@umn.edu.

* Language adapted from the American Association of University Professors "Joint Statement on Rights and Freedoms of Students".
COURSE OUTLINE

NOTE: Readings marked with * are in the digital course reserve at https://reserves.lib.umn.edu/.

Jan. 21    Introduction and Overview

Jan. 23    “What is the Food System?”


Jan. 27    Optional Introduction to Vensim (3:00 – 4:00 p.m., 50 Coffey Hall)

Jan. 28    “What is a System?”

Jan. 30    Basic System Concepts
Meadows, second part of “The Basics” – pp. 17-34.

Feb. 4     One-Stock Systems – Environment, Feedback, Control
Meadows, first part of “A Brief Visit to the Systems Zoo” – pp. 35-58.

Feb. 6     Two-Stock Systems – Renewable and Non-Renewable Stocks

Feb. 11    Introduction to Vensim (50 Coffey Hall)

Feb. 13    Analysis, Management, and Design

Feb. 18    Guest Speaker

Feb. 20    Exam

Feb. 25    Native Americans: Minnesota before European Settlement

Feb. 27  European Settlers  
*Minnesota: A History of the Land*, Episode 2, “Changes in the Land” – segments prior to “Slash and Burn” at approx. 43 minutes. (YouTube)


March 4  Turn-of the Century Transformations: Mass Production, Branded Products, and Mass Retail  

Smith, “Henry Crowell’s Quaker Special” – pp. 105-111.


March 6  Post WWII  

Smith, “McDonald’s Drive-In” – pp. 219-228.


March 11  Late 20th and Early 21st Century  


March 13  Wicked Problems

March 18 – 20  No Class- Spring Break

March 25  Analysis Lecture

Washington, DC: National Science and Technology, Committee on Environment and Natural Resources.


March 27  Analysis Group Work

April 1  Analysis Lecture

April 3  Analysis Group Work

April 8  Management Lecture
Meadows, “Systems Traps... and Opportunities” – pp. 111-141.


April 10  Management Group Work

April 15  Management Lecture

April 17  Management Group Work
April 22  Design Lecture


April 24  Design Group Work

April 29  Design Lecture

May 1  Design Group Work

May 6  Group Presentations

May 8  Group Presentations

May 16  Final Exam (10:30 a.m. – 12:30 p.m.)