**Course Syllabus**

**SS/FW 3313, SS 5313 – Sustainability Science, Policy and Assessment**

**Department of Social Sciences**

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**Instructor Information**

Instructor: Audrey Mayer, Ph.D., Associate Professor  
Office Location: Academic Office Building Room 203  
Telephone: Office 1– (906)-487-2864  
E-mail: almayer@mtu.edu  
Office Hours: By appointment

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**Course Identification**

Course Number: SS/FW 3313, SS 5313  
Course Name: Sustainability Science, Policy and Assessment  
Prerequisites: none

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**Course Description/Overview**

Human societies and the environment upon which they depend are complex dynamic systems, and recent research and policy regarding the sustainability of these systems have focused on ways to prevent their collapse. Societal collapses often have an environmental trigger (such as a drought), and have occurred numerous times in the past, as we see from the sudden disappearance of advanced civilizations. They also are occurring now, as we see from the collapse of countries such as Somalia and Haiti. While each society is unique, all are vulnerable to common forces such as environmental change.

In this course we will focus on the basic science and policy of sustainability. We will review some policies that have been implemented at the local, national, and global scale to guide the sustainable development of socioecological systems. These programs include familiar ones such as the Kyoto Protocol for reducing greenhouse gas emissions, and the Millennium Development Goals set forth by the 2000 United Nations conference. We will then focus on sustainability indices, and the indicators and methods used to measure them. Quantitative data, called “indicators”, are often used to track the success (or lack thereof) of these policies, and these data are often combined into one number, an index. We will learn how these indicators and indices are developed and used in sustainability indices, projects and policies, and discuss their strengths and weaknesses. Finally, we will review how these indicators and indices are or could be used in case studies to track progress, using case studies taken from the three required books.
**Course Learning Objectives**

By the end of the course, students should:

1. Have a thorough knowledge of the major global and national environmental sustainability initiatives;
2. Be familiar with some of the numerous local-level sustainable development programs;
3. Describe the key environmental factors that can drive societies towards collapse;
4. Understand how to use indicators and indices to assess the success of policies and programs towards sustainable development goals.

**Course Resources**

**Course Website(s)**
- Canvas
  - SS3313: [http://mtu.instructure.com/courses/803064](http://mtu.instructure.com/courses/803064)
  - FW3313: [http://mtu.instructure.com/courses/803062](http://mtu.instructure.com/courses/803062)
  - SS5313: [http://mtu.instructure.com/courses/803065](http://mtu.instructure.com/courses/803065)
- Personal Website <http://www.social.mtu.edu/people/almayer.htm>

**Required Course Text**

**Grading Scheme**

<table>
<thead>
<tr>
<th><strong>Letter Grade</strong></th>
<th><strong>Percentage</strong></th>
<th><strong>Grade points/credit</strong></th>
<th><strong>Rating</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>93% &amp; above</td>
<td>4.00</td>
<td>Excellent</td>
</tr>
<tr>
<td>AB</td>
<td>87% – 92%</td>
<td>3.50</td>
<td>Very good</td>
</tr>
<tr>
<td>B</td>
<td>82% – 86%</td>
<td>3.00</td>
<td>Good</td>
</tr>
<tr>
<td>BC</td>
<td>76% – 81%</td>
<td>2.50</td>
<td>Above average</td>
</tr>
<tr>
<td>C</td>
<td>70% – 75%</td>
<td>2.00</td>
<td>Average</td>
</tr>
<tr>
<td>CD</td>
<td>65% – 69%</td>
<td>1.50</td>
<td>Below average</td>
</tr>
<tr>
<td>D</td>
<td>60% - 64%</td>
<td>1.00</td>
<td>Inferior</td>
</tr>
<tr>
<td>F</td>
<td>59% and below</td>
<td>0.00</td>
<td>Failure</td>
</tr>
<tr>
<td>I</td>
<td>Incomplete; given only when a student is unable to complete a segment of the course because of circumstances beyond the student’s control. A grade of incomplete may be given only</td>
<td></td>
<td></td>
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</tbody>
</table>
when approved in writing by the department chair or school dean.

X  Conditional, with no grade points per credit; given only when the student is at fault in failing to complete a minor segment of a course, but in the judgment of the instructor does not need to repeat the course. It must be made up within the next semester in residence or the grade becomes a failure (F). A (X) grade is computed into the grade point average as a (F) grade.

Grading Policy

Grades will be based on the following:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Literature review/Introduction + References</td>
<td>50</td>
</tr>
<tr>
<td>sections of paper</td>
<td></td>
</tr>
<tr>
<td>Rough draft</td>
<td>100</td>
</tr>
<tr>
<td>Peer review of two student drafts (25 points</td>
<td>50</td>
</tr>
<tr>
<td>each)</td>
<td></td>
</tr>
<tr>
<td>Final paper</td>
<td>100</td>
</tr>
<tr>
<td>In class presentation</td>
<td>100</td>
</tr>
<tr>
<td>Class attendance</td>
<td>50</td>
</tr>
<tr>
<td>Class participation</td>
<td>100</td>
</tr>
<tr>
<td><strong>Total Points</strong></td>
<td>550</td>
</tr>
</tbody>
</table>

Late Assignments

A late assignment loses 10% of the highest possible grade for each day it is late. For example, if the assignment would have received a 95% if it were turned in on time, if it is turned in a day late is will receive an 85%. This penalty will be waived if students notify me prior to the deadline of potentially late assignments... and the reason must be unavoidable!

Collaboration/Plagiarism Rules

Unless explicitly instructed, homework assignments and papers are to be completed individually, with no help from or discussions with other students. We will use the homework assignments as springboards for discussion in class, and therefore we need a variety of viewpoints and ideas.

Out of consideration for your classmates, cell phones, Blackberries, iPods, PDAs, or any other electronic devises are not to be used in the classroom, and must be shut off. Information exchanges on these devices during class are also prohibited and violate the Academic Integrity Code of Michigan Tech.

University Policies

Academic regulations and procedures are governed by University policy. Academic dishonesty cases will be handled in accordance the University's policies.
If you have a disability that could affect your performance in this class or that requires an accommodation under the Americans with Disabilities Act, please see me as soon as possible so that we can make appropriate arrangements. The Affirmative Action Office has asked that you be made aware of the following:

*Michigan Tech complies with all federal and state laws and regulations regarding discrimination, including the Americans with Disabilities Act of 1990. If you have a disability and need a reasonable accommodation for equal access to education or services at Michigan Tech, please call the Dean of Students Office, at 487-2212. For other concerns about discrimination, you may contact your advisor, department head or the Affirmative Action Office, at 487-3310*

**Academic Integrity:**
http://www.studentaffairs.mtu.edu/dean/judicial/policies/academic_integrity.html

**Affirmative Action:**
http://www.admin.mtu.edu/aa0/

**Disability Services:**
http://www.admin.mtu.edu/urel/studenthandbook/student_services.html#disability

**Equal Opportunity Statement:**

**Course Assignments**

**Research Paper:**
The largest portion of the work you will do for the class will be a research project of a sustainability-related topic of your choosing. Undergraduate students: You can choose one of the case studies we discuss in class, or from the books we read, or one of the films, or come up with something completely different. Graduate students: This should be part of your thesis or dissertation work, and the “final paper” should either be a chapter or a manuscript that can be submitted to a peer-reviewed journal. **All students must have an email or in-person conversation with me about their research topics before proceeding!!**

The project will consist of the following elements (graded assignments):

1. **Background/Literature Review of paper:** 50 points. To get you started on your paper (so you don’t leave it to the last minute), I would like you to turn in a literature review that provides background on your project idea. This includes two sections: an Introduction section where you introduce the topic and discuss what others have done on it, with sources of information cited in the text; and a References section where you list the full bibliographic information for those sources.

2. **Rough draft:** 100 points. The paper must be at minimum 2500 words, but will likely be longer than this.

3. **Peer reviews of rough drafts:** 25 points each. I will randomly assign two student papers to each student, and you will read the two drafts and make comments on a Peer Review form (available in Canvas). You’ll return the forms to the student
authors and to me. 50% of your points for the rough draft will come from an average of the two student assessments (the other 50 points will come from me).

4. **Final paper**: 100 points. This will be due at the end of the semester. Your final paper will be graded by me, using the same grading rubric as for the rough draft.

5. **In-class presentation**: Each student will give a 15 minute oral presentation reviewing their research paper. Students can use Power Point slides, handouts, or any other platforms or materials (please let me know what you will need in terms of equipment), and can read from notecards or a prepared talk if they so choose. More information on the format of this presentation, and how it will be graded, will be given to you in class and posted on Canvas.

**Class participation**: 100 points. For those class periods that are dominated by class discussions of readings or films, I will keep a tally of those students who have verbally contributed in class and give points accordingly. It will be much easier for you to contribute if you keep up with the readings. I will try to keep the running total of each student's presentation points up-to-date on Canvas, so you can monitor this amount and start to participate more (or less) as the end of the semester approaches.

**Attendance**: 50 points. Students will receive two unexcused absences without any penalty. For each absence thereafter, students will lose 10 points.

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**Course Schedule**

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**Weekly Modules:**
What is “Sustainability”?  
Environmental Sustainability  
Social Sustainability  
Economic Sustainability  
Corporate Sustainability  
Measuring and Assessing Sustainability  
Complex Systems Theory, Catastrophe Theory  
Resilience, Paranchy, and Transition Theory  
Societal Collapse and State Failure  
Globalization and Environmental Justice

**Plus Student Presentations on their Research Topics**