Syllabus: EnvE/CE/ArchE 5642 - Sustainability
9:30-10:50 TTh, BCH 213
Mark W. Fitch  Office: Butler-Carlton 222; 341-4431, mfitch@mst.edu
Contact: email any time, come in my office if the door is open, knock if the door is closed.
Office Hours: MWF 10-11, but really just come whenever

MY OBJECTIVE: Students will be able to argue for a sustainable option in a convincing manner.

TEXT: Meadows, Randers and Meadows (2004), Limits to Growth: The 30-Year Update, ISBN 193149858X. Also, supplemental articles as posted and announced in class.

GRADING POLICY: I will assign grades to all the work you do, and will use these grades as a baseline for assigning course grades. Grades will be weighted as shown below. At the end of the semester, I will plot the grades against the names and draw breaks based on my perception of the earned grade. The 90/80/70/60 grade scale will be the minimum standard for assigning grades.

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Homework</td>
<td>10%</td>
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<tr>
<td>Readings</td>
<td>25</td>
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<tr>
<td>LCA Project</td>
<td>30</td>
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<tr>
<td>Midterm Exam</td>
<td>15</td>
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<tr>
<td>Final</td>
<td>15</td>
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<tr>
<td>Participation</td>
<td>5</td>
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<td>Total</td>
<td>100</td>
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For assignments: if you believe there has been an error in grading, please bring it to my attention within two weeks of my returning the grade.

ACADEMIC DISHONESTY: A penalty of no less than an F on the assignment will be imposed for any knowing offense, including plagiarism. In this class, copying from assigned reading to complete readings is not considered plagiarism. On the other hand, copying from any source into the LCA project or into homework is considered plagiarism (unless used as a supporting image or quote with appropriate attribution).

DISABILITY: If you have a documented disability that may affect your class performance, please inform me privately during the first week of classes so that appropriate arrangements may be made.

HOMEWORK POLICY: Several assignments will require groups to work together. When an assignment is made to a group, a single paper or similar record is expected which shall list the group members. Most often the group assignment shall be presentation to the class with no further written report.

Homework is due by the close of business (4:30 pm) on the due date unless otherwise specified. There are separate reading due dates for distance students, for whom midnight is the cut-off time.

Assignments other than reading receive -10% per day late.

READINGS: Most classes will have a brief assigned reading due at the beginning of class. When doing the reading, answer the “Questions to resolve” listed in the schedule. Those answers are due at the beginning of class.

E-mail or Canvas turn-in is acceptable only for distance students. Readings are not accepted late. Do the reading before class.

Distance students have reading due dates of Saturday (= Tuesday on-campus due date) or Sunday (= Thursday on-campus due date). The schedule will show both on-campus and distance due dates.

When reading, keep in mind the questions are to guide your reading. If one question is asked in sixty pages of reading, probably skimming the text is fine, as the text goes in more depth than needed. On the other hand, if there are many questions over a few pages, this material is probably judged important, or the text may be a bit thin on the topic compared to what you should learn.
In answering reading questions, quoting the text is not considered plagiarizing. The point is to assist the student to read the text before class. It’s no problem if you are confused by the reading and thus bring a question!

DISTANCE ISSUES The class has a distance cadre (at MSU) as well as an in-classroom cadre. This results in some issues:

Video access: the university adopted policy in 2014 that does not allow the in-class cadre to watch the recorded classes. No pay, no will play. But in case of significant event causing one to miss class, campus has been known to grant limited access.

Exams: There will be two exams in this class, which shall be either ‘take home’ or timed on-line using Canvas. Make-ups are offered after the exam only in the event of a documented disaster. An exam may be given early if the class judges you to have a reasonable excuse.

Instructor access: The instructor will do his best to reply to e-mail within 24 hours. Distance students are encouraged to feel free to call the listed office phone number, which forwards to my cell phone. Do not text me.
COURSE OBJECTIVES

The overarching class goal is to be able to argue a sustainable development case in an effective manner.

The detailed objectives are for the student to be able to:

• describe the history leading to emerging importance of sustainability
  o define sustainability/sustainable development
  o discuss changes in humanity’s relation to and reliance on the environment
• perform Life Cycle Assessment on a design choice relevant to their major,
• critique estimates of the Earth’s carrying capacity (population)
  o identify causes of losses in food production efficiency
  o discuss uncertainties in estimating carrying capacity
• critique water utilization rates in a sustainable context
  o identify sources and uses of water resources
• critique the technology options for providing electricity to society
  o list the advantages and disadvantages of various energy sources
  o discuss how those advantages and disadvantages influence the likelihood of that technology being adopted in a sustainable future
  o identify sources and uses of energy resources
  o propose a pathway for electrical power generation to reach a sustainable future
  o propose a utilization pathway to reach a sustainable future
• discuss the international and global issues that make sustainable design important, including resource depletion (e.g. peak oil)
  o describe “peak oil”
  o identify the factors which limit the use of resources
  o identify sources and uses (or sinks) of resources (or pollutants)
• discuss the international and global issues that make realizing sustainable design difficult [barriers to change], including issues of population, economic development, and equity amongst societies and generations
• describe how social organizations (NGOs, public policy) affect adoption of technology,
• argue a sustainable development case in an effective manner.

[Acknowledgements: stolen and inspired from various sources, notably U of Cambridge’s MPhil in Engineering for Sustainable Development.]