Sustainability across the Curriculum:
A Preliminary Investigation by Students to Evaluate and Influence the Awareness and Application of Sustainability in The College of Arts and Sciences and The Haworth College of Business.

Chelsea Keck
Karl Walls

ENVS 410: Appropriate Technologies and Sustainability—the Campus as a Living, Learning Laboratory
Session: Spring 2010
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Executive Summary</td>
<td>3</td>
</tr>
<tr>
<td>II. Introduction</td>
<td>5</td>
</tr>
<tr>
<td>III. Methodology &amp; Data</td>
<td>7</td>
</tr>
<tr>
<td>IV. Examples of Best Practices on Campus</td>
<td>12</td>
</tr>
<tr>
<td>V. Examples of Best Practices on Other Campuses</td>
<td>14</td>
</tr>
<tr>
<td>VI. Discussion</td>
<td>18</td>
</tr>
<tr>
<td>VII. Limitations of Our Analysis &amp; Future Work</td>
<td>25</td>
</tr>
<tr>
<td>VIII. Conclusions/Recommendations</td>
<td>27</td>
</tr>
<tr>
<td>IX. References</td>
<td>29</td>
</tr>
<tr>
<td>X. Appendices</td>
<td></td>
</tr>
<tr>
<td>1. The Talloires Declaration</td>
<td>31</td>
</tr>
<tr>
<td>2. President’s University-Wide Sustainability Committee:</td>
<td>32</td>
</tr>
<tr>
<td>Strategic Sustainability Initiatives Report</td>
<td></td>
</tr>
<tr>
<td>3. First Contact E-mail to Professors</td>
<td>33</td>
</tr>
<tr>
<td>4. Sustainability Course List</td>
<td>34</td>
</tr>
<tr>
<td>5. Sample Thank-you E-mail to Professors</td>
<td>44</td>
</tr>
<tr>
<td>6. Anonymous Sustainability Online Survey</td>
<td>45</td>
</tr>
<tr>
<td>7. Sample Phone Interview with Other Universities</td>
<td>48</td>
</tr>
<tr>
<td>8. Current University Contact List</td>
<td>49</td>
</tr>
</tbody>
</table>
I. Executive Summary

Western Michigan University students must be given educational opportunities to create a worldview that accepts and practices sustainability. With the passing of the Sustainability Fund Initiative and President Dunn’s signing of “The Talloires Declaration,” the next step for WMU is expanding sustainability in all curriculums. The primary goal of our research was to evaluate and influence the awareness and application of sustainability in the College of Arts and Sciences and the Haworth College of Business.

In our preliminary research for sustainability classes offered at WMU, we looked in WMU’s online course catalogue and found sixty-three professors who taught seventy-four courses that fit into our definition of sustainability. Of these, we were able to interview thirty-four professors and evaluate forty sustainability courses. We also interviewed faculty and staff from other universities who have established sustainability minor degree programs. We discovered their processes for creating a sustainability minor started by student initiated evaluations, similar to our project. We can use their information and the positive feedback from WMU professors as a starting point to create a sustainability minor program at WMU. Based on our research, we suggest that a sustainability minor degree program be offered at Western Michigan University.

Our anonymous survey was e-mailed to faculty members we interviewed within the College of Arts and Sciences and the Haworth College of Business. The results show 93% of the participating faculty believe the issue of sustainability is important to them, 67% of professors agree there are areas of expansion pertaining to sustainability that could be added to their course and 93% of professors surveyed agree there are areas of expansion pertaining to
sustainability that could be added to their departments. When we conducted our face-to-face interviews and preliminary course evaluations in the College of Arts and Sciences and the Haworth College of Business, we found sustainability topics and discussion in sixteen departments.

We have produced a preliminary investigation; we want our findings to promote a more formal analysis of sustainability in the curriculum throughout all of the colleges at Western Michigan University and in the future create an interdisciplinary sustainability minor. Our future goals of this project include:

- **More formal analysis of sustainability curriculum at WMU:**
  
  Formulate a survey using acceptable statistical practices and improve planning for the face-to-face interview between students and faculty. Be more specific on what information we want to get out of the interview and what the requirements should be for a course to be considered a sustainability course.

- **Further investigation of best practices at other universities:**
  
  Collecting data from other universities who have created a sustainability program. This data is very useful to learn from their successes and failures. Adapt their processes to fit WMU.

- **Create an online database to help current and future students find sustainability related courses:**
  
  Allowing students to search sustainability topics and interdisciplinary courses and degree programs related to their interest of study within one website.

- **Acquire faculty support:**
  
  Based on the research from this study, it can be concluded that faculty interest in sustainability is present. Scheduling faculty workshops, roundtables and luncheons to encourage discussion and action towards future sustainability in WMU’s curriculum, including an interdisciplinary sustainability minor.
II. Introduction

As future leaders and influential members in corporations and communities, WMU students and graduates would like to create a worldview that accepts and practices sustainability. In order to create this worldview, WMU students must be given educational opportunities to learn about and become more personally involved in course work and hands-on activities relating to sustainability.

Although sustainability coursework has been offered in years past, Western Michigan University’s Environmental/Sustainability Mission/Goals Statement implemented in 2003 presented a larger emphasis on sustainability.

By enacting and implementing this mission statement, Western Michigan University will be a positive example and confirm its role as a leader in promoting environmental stewardship on campus and beyond (Mission and Goals).

Additional progress toward a sustainable campus continues with President Dunn’s signing of “The Talloires Declaration,” the creation of WMU’s Strategic Sustainability Initiatives Report (SSIR), and the recent passing of the Student Fund Initiative (SFI). To go beyond the status-quo of only a few students involved in sustainability activities on campus, these recent favorable events create an opportunity. This is a good time for promoting curriculum offerings with web-based information tools that aid students in selecting course offerings that coincide with their areas of interest early in their careers at WMU or perhaps before they arrive. Tools such as The University of Michigan’s website, “Find Sustainability Courses” and easily understandable/accurate course descriptions will be very useful. A problem we discovered in our research was that almost a third of the professors surveyed said their course description
did not accurately describe the course they teach. Although our research techniques were not “scientific” (time and convenience would not allow us to use a formal process for our preliminary investigation), this is an indication that this problem needs further research and corrective action. Implementing user-friendly information tools will be an important part of the cultural shift toward more student involvement in coursework and campus activities relating to sustainability.

The primary goal of our research was to evaluate and influence the awareness and application of sustainability in the College of Arts and Sciences and the Haworth College of Business. During our investigation, we discovered that 93% of professors contacted agree that sustainability is a personally important issue, 67% want their courses to include more sustainability information, and 93% of the professors agree that their department needs to add areas of expansion pertaining to sustainability, data was collected from our anonymous online survey (Appendix 6, percentages were formulated by SurveyMonkey.com). This indicates that wider attention by the campus community is needed. Another goal was to gain a better understanding of sustainability education offered at WMU and how, in the future, the University can build and expand on this foundation. Although we were somewhat overwhelmed with having face-to-face discussions with thirty-four professors who are responsible for forty courses, it was a very positive experience to learn about the professors’ favorable responses toward student involvement regarding this important issue.

The next step for this project could be a continuation of this research with ten to thirty students in a campus-wide effort to collect and evaluate sustainability course information that will lead to the creation of an interdisciplinary sustainability program, including minors,
certificates, and/or graduate programs. The need for curriculum improvement has already been presented in the SSIR (Table 1, Appendix 2). Methods for inspiring student involvement are also in the SSIR with references to Orientation Materials, Peer Outreach, and Campus Sustainability Roundtable Participation (Table 1, Appendix 2).

The opportunity created by increasing interest on our WMU campus must not be ignored. President Dunn’s three pillars resonate with students, and our research shows faculty as well. This report is focused on curriculum relating to awareness and application of sustainability but student participation is a very important part of any future campus-wide sustainability program offerings. President Dunn, as a result of his signed agreement to “The Talloires Declaration,” agreed to have WMU take the following action: “Establish programs to produce expertise in environmental management, sustainable economic development, population, and related fields to ensure that all university graduates are environmentally literate and have the awareness and understanding to be ecologically responsible citizens” (Appendix 1).

III. Methodology

To the best of our knowledge, we are the first students to investigate curriculum courses relating to sustainability and the professors who teach these courses. This unique circumstance presented us with many opportunities and challenges.

Our first task for project was to establish a list of objectives: Create an acceptable definition of sustainability, develop a list of courses using the categories of economic, social and environmental sustainability, establish the most convenient way to gather course descriptions
and contact the professors, form a coherent grading system for the chosen courses, and develop a survey for professors so they can reveal sustainability content in their courses. As we began working on the research we discovered additional ideas: e.g., create an anonymous online survey to collect interest in the expansion of sustainability in their courses and/or departments, develop a way to collect data relating to an acceptable definition of sustainability, and design a contact procedure for gathering information from other universities to learn about their sustainability curriculums.

After developing our approach, we created a practical working definition of sustainability. Keeping in mind President Dunn's Three Pillars of Success (Diversity, Health & Wellness and Sustainability) we organized sustainability into three groups: economic, social and environmental.

Our Definition of Sustainability:

Ecocultural sustainability requires that a society can continually renew itself and its members by supporting (Glasser) (1) social sustainability: the preservation of cultural diversity, promotion of human rights, and ethical behavior, (2) economic sustainability: factoring in true cost accountability and applying corporate responsibility, and (3) environmental sustainability: incorporate good practices working towards the preservation and coexistence of land, earth, and life.

Due to time constraints we understood we did not have enough time to review all of the courses offered at WMU. We decided to limit ourselves to the College of Arts and Sciences and the Haworth College of Business. Our approach was also limited by our brief interpretation process to identify classes relating to sustainability. We decided a convenient way to begin our approach would be an examination of the online course descriptions.
While reviewing the course descriptions we kept in mind our three categories of sustainability: economic, social, and environmental. If the course description contained any mention of our categories, we took note of the course. After compiling a list of possible sustainability courses, we looked up the professors teaching the courses in fall 2009, spring 2010, and fall 2010. Seventy-four courses taught by sixty-seven faculty members were flagged as potential sustainability courses based on their online descriptions. Departments included: Environmental Studies, Geology, Geosciences, Anthropology, International Studies, History, Political Science, Philosophy, Food and Consumer Packaging, Management, Physics, Religion, Biology, Economics, Communications and English. We sent e-mails to professors who taught the courses we identified according to our criteria and requested a copy of their class syllabi; also, we asked for an appointment to discuss their course (see Appendix 3).

In order to maintain consistencies during our research, each professor was asked seven identical questions:

- Given this definition, how well do you feel your class encompasses sustainability?
  
  Low 1 2 3 4 5 High

- In terms of time, about how many class periods do you feel you spend on the subject of sustainability?
  
  < 1 1 2 3 4 5 > 5 How many? _____

- We have categorized sustainability into three areas; do you feel your class covers?
  
  One area
  Two areas
  Three areas
  Two of these areas at one time
  All three areas at one time
When sustainability is brought up in your lectures does it tend to be a focused conversation or is it briefly mentioned during a larger subject?

Do you touch base on multiple areas of sustainability throughout the entire semester or do you teach in depth about specific areas of sustainability for a finite period of time?

Is there a certain sustainability topic that you think you spend more time on?

In your course is there a project, presentation or group activity relating to sustainability that you assign?

From the list of sixty-seven faculty members we e-mailed, thirty-four accepted our request for an appointment. Our two-part approach, e-mail and face-to-face discussion, provided us with a better understanding of what type of sustainability information is shared during their coursework. Some difficulties occurred during this approach. There were professors who refused to respond to our first e-mail and also did not respond to a second e-mail. There is a list of courses from the information gathered from our interviews and the course syllabi, located in Appendix 4.

All data was collected with respectful intentions as we tried to gather the availability of sustainability coursework within a wide range of disciplines. We did not question a professor’s ability to teach their course. Our acknowledgment of the course was presented with a positive attitude, good manners, and respect. There is not an interdisciplinary sustainability program, including minors, certificates, and/or graduate programs at Western Michigan University at this time. We did not discuss these items with the professors, future inquires may be helpful to expand sustainability across the curriculum.

After discussing course related sustainability instruction with the professors, we followed up with a thank you e-mail (Appendix 5) containing a link to an anonymous survey and mentioned an opportunity for professors to attend a sustainability luncheon hosted by Dr.
Harold Glasser. To develop our anonymous survey (Appendix 6), we worked with Dr. Glasser and Matthew Hollander. Our online survey was sent out to all participating faculty as a follow-up to our interviews. Our objective was to clarify how important the issue of sustainability is to the faculty and discover their opinions about the idea of expanding sustainability instruction in their classes and departments. This survey was also used to compare interpretations faculty members have concerning several popular definitions and figures related to sustainability. Since there are many working definitions of sustainability circulating around the world of academia, WMU may want to select one specific definition; this selection could be based on future research.

The website for the Association for the Advancement of Sustainability in Higher Education (AASHE), presents an overview of universities across the United States who offer sustainability minor degree programs. We were able to conduct phone interviews with four of these universities: University of Florida, University of Minnesota Twin Cities, University of the Pacific, and University of Massachusetts-Dartmouth to learn more about how these universities integrated a sustainability program into their curriculums. During the interview, we asked the following questions:

- How did a sustainability program begin at your university? Was it a student initiative, staff, faculty or alumni initiative?
- What was the process and key actors for success of the new program?
- How did you decide the curriculum? In other words, how were the courses chosen?
- Were there any problems you encountered while working on this process? Or any issues we should be aware of?
The information collected is a useful starting point for WMU because it identifies some of the best practices at other universities and it reveals what worked for the universities and what they would have done differently. Further discussion concerning these universities can be found in Section V, “Examples of Best Practices on Other Universities.”

IV. Examples of Best Practices on Campus

Western Michigan University has address sustainability with some positive activities:

1. President Dunn signed “The Talloires Declaration,” January 2008. Signing “The Talloires Declaration” symbolizes WMU’s concern about environmental issues such as pollution, depletion of natural resources, water, soil, ozone, emissions of green house gases, security of nations and the well being of future generations (Appendix 1). President Dunn agrees with action 3 which states, “…ensure that all university graduates are environmentally literate, and have the awareness and understanding to be ecologically responsible citizens.” This is significant in terms of enhancing ecocultural sustainability on campus. Agreement with “The Talloires Declaration” establishes the formal commitment to a campus-wide, personal and institutional, culture of sustainability which supports and coordinates efforts while making a powerful statement to erase the gap between good intentions and actions for change.

2. A Strategic Sustainability Initiatives Report was created by The President’s University-wide Sustainability Committee (PUSC) in February 2009. It is intended to set the stage for comprehensive, collaborative, campus-wide planning on sustainability (Appendix 2). This report has five initiatives: Governance & Administrative, Operations and In-reach,
Community Service and Outreach, Curriculum, and Research. As mentioned in the Introduction, students will play a valuable role in the In-reach and Outreach for campus-wide and community sustainable activities. Two main components in the Curriculum section pertain directly to our project. Part 1, 3 and 4 are categorized as planned initiatives (planned initiatives need high levels of coordination and require ongoing conversations between several campus leaders). Part 1 reads, “Following WMU’s “General Principles of Curriculum Change” (GPoCC) and using the online Curriculum Change Guide, integrate sustainability into all curricula and throughout every college.” Part 3, “Create Summer Faculty Development Workshops for facilitating integration and infusion of sustainability throughout the curriculum.” Part 4 of the curriculum category includes: “Developing new environment & sustainability oriented degree combinations, minors, & concentrations (examples include: Green Business & ENVS; Ecological Engineering/Green Design & ENVS; Education for Sustainable Development/Environmental Education & ENVS; etc.). Special opportunities exist for new/restructured undergraduate & graduate programs in ‘Green Materials, Design, Energy, & Manufacturing’ & ‘Education for Sustainability Teacher Training.’” Our research is a convenient sampling of courses that could potentially be found in these future degree programs. During our discussions with professors, we have discovered a possible area for sustainability coursework that does not exist at this time. Future research is needed to accurately assess the potential for expansion within current classroom activities.
3. The Sustainability Fund Initiative (March 2010) is a referendum passed by students and agreed to by The Board of Trustees: it allows WMU to collect $8 per student per fall semester and $4 per student per summer semester toward the creation of a fund for campus sustainability, green student jobs, and an Office of Sustainability (Klug). With the passing of the SFI, all academic programs at the University will be eligible for funding from The Sustainability Fund through The Fund Committee. The SFI will support student-driven initiatives: e.g., sustainability marketing, senior engineering design projects, sustainability education curriculum development, a campus bike shop, student gardens, and a green roof project. With a sustainability office and funding for student projects underway, a sustainability program is the next step for WMU.

4. Momentum for improving campus sustainability attention was helped by the expansion of ENVS410 (January 2001): Appropriate Technologies and Sustainability—the Campus as a Living, Learning Laboratory course that facilitates student involvement from all colleges. This course requires collaborative, campus sustainability research projects as it provides the foundation for many campus sustainability projects and policies. Without the expansion of this course, projects like ours would be more difficult to begin. This class is an opportunity for students to put their sustainability ideas into action.

V. Examples of Best Practices on Other Campuses

The Association for the Advancement of Sustainability in Higher Education (AASHE) lists universities who have sustainability programs (minors, majors, and certificates). We contacted
four of these universities and conducted phone interviews to gain a better understanding about how their programs were created. They provide realistic ideas we can use to formulate and implement our program. We spoke to the University of Florida, the University of Minnesota Twin Cities, the University of the Pacific, and the University of Massachusetts-Dartmouth.

- **The University of Florida**: The University of Florida has a Sustainability Studies Minor requiring 18 credits including a capstone. Also, UF has other undergraduate and graduate degree programs related to sustainability. They offer a BA with an area of specialization in Sustainability Studies, BA & BS in Environmental Science, and Bachelor of Science in Sustainability and the Built Environment (Thiele). The Sustainability Studies Minor was first initiated by the students, who then convinced faculty to spearhead the effort. Students began developing a Minor curriculum based on investigating all of the University courses and identifying those that included sustainability content in the syllabi. The students also created surveys to pass out to the student body to discover if interest and support for the creation of a Minor in sustainability existed. During the next step, the Minor had to be granted approval by the University’s Department Curriculum Review Board and the University Curriculum Review Board. Key actors for the implementation of the program included support from the President of the University, students, faculty, and the community. The main lesson to be learned from UF is to be very thorough when developing the curriculum for the program; the review board process can be very difficult.

- **The University of Minnesota Twin Cities**: The University of Minnesota Twin Cities has a Sustainability Studies Minor requiring 15 credits, including a capstone course. U of M
also has undergraduate majors that complement sustainability. They offer a BA in Biology, Society & the Environment and BS in Ecology, Evolution & Behavior. The Sustainability Studies Minor program began over 10 years ago. Originally, the Conservation Agriculture and International Policy Departments concluded that sustainability cannot just be a part of the Environmental Science and Ecology Departments. This conclusion prompted the creation of an interdisciplinary faculty group. The curriculum was chosen by a committee, faculty driven, using a criteria for selecting courses. The committee originally included faculty and students, but the students were let go because the process was too time consuming. The faculty committee voted on which courses should be included, and which should not. Currently, the program includes faculty from seven colleges and fifty departments incorporating an array of interdisciplinary programs exclusive from environmental studies. Recommendations from U of M include creating a green fund, establish a Sustainability Office, elect a sustainability coordinator, and have a set of paid interns. The Sustainability Coordinator may come from faculty or an outside resource and the position is full-time (60-70 hours per week). The paid internship programs allow students to obtain hands on experience with a wide range of sustainability projects on campus (Mercer-Taylor).

- **The University of the Pacific**: The University of the Pacific School of Engineering and Computer Science has a Minor in Sustainability requiring at least 20 credits. Introduced in the fall of 2009, students choose from a variety of courses from Engineering,
International Studies, Earth and Environmental Sciences, Economics, Philosophy, and Business. “Sustainability” was not a common term used on campus until word spread of the possibility of a minor being created. The minor program originated within the Engineering Department and encouraged by faculty. They attended a Sustainability Workshop and expanded the program to include more departments. The Sustainability Committee talked to Deans and faculty. They saw potential in this Minor and how they could connect it to their fields of study. Developing the minor was a process which took approximately one year to obtain formal approval. At this time the University has not encountered significant problems. Advice from the University includes using existing courses and not to burden any other departments with attempts to add new curricula. Courses could be modified as other opportunities come along for expanding the program but the minor needs to sustain itself as an individual area.

- **The University of Massachusetts-Dartmouth:** The University of Massachusetts-Dartmouth has a Sustainability Studies Minor program as well as an Online Sustainability Certificate Program. The minor program requires 18 credit hours for completion. UMD has woven sustainability throughout its curriculum: Including Policy, Business, and Mechanical Engineering. The program began with a combination of the President signing the American College & University Presidents’ Climate Commitment (ACUPCC) and the dedication of one professor. An office was established with graduate students and undergraduates working for the university to activate sustainability efforts. For a sustainability program to be implemented in the curriculum, faculty and administrative
positive involvement is the most critical component. Alumni support provides funding, support, jobs, and internship programs.

The University of Michigan created the Graham Environmental Sustainability Institute to increase student awareness of environmental sustainability related courses offered throughout interdisciplinary departments ("Find..."). Their website includes a course database, including a search using a combination of course title, interest area, key word, and department. This search can identify nearly 400 courses offered in undergraduate and graduate programs in ten colleges. Interest areas include: Climate & Air Quality, Earth Sciences & Systems, Environmental Policy, Justice & Law, Energy Resources & Law, Conservation Biology & Biodiversity, Land Use, Water & Water Quality, Transportation & Mobility, and more. This is a valuable resource for students as it helps them sign up for classes that have an environmental sustainability emphasis.

VI. Discussion

When this project was in its developmental stage, the original goal was to explore the teachings of sustainability throughout WMU curriculum. As research was gathered from WMU faculty from the College of Arts and Sciences and the Haworth College of Business as well as faculty around the country, the true potential and possibilities of this report presented itself. Not only was expansion of sustainability across the entire curriculum a possibility, but collecting all courses into a comprehensive sustainability minor degree program became a realistic, potential outcome. Since there were only two people working on this project, we had to
narrow our sustainability course search to two colleges. There are also many courses that do not have accurate course descriptions in the online database, some professors were not available for meetings and we were unable to review some classes; consequently, we changed our project title to a preliminary investigation of sustainability courses offered within the two colleges. Based on our research from the Arts and Sciences and College of Business faculty interviews, the anonymous faculty survey, and best-practices data gathered from other universities, there is convincing evidence to support a plan to offer a minor degree program in sustainability at Western Michigan University.

Although our anonymous survey (Appendix 6) was on a small scale, it collected responses from a diverse group of faculty members in the College of Arts and Sciences and the Haworth College of Business. The results show that 93% of the faculty that completed the survey believe that the issue of sustainability is important to them: 67% of professors surveyed agree that there are areas of expansion pertaining to sustainability that could be added to their courses: 93% of professors surveyed agree that there are areas of expansion pertaining to sustainability that could be added to their departments.

The data shows there is faculty support for sustainability at WMU. With proper leadership and direction, this interdisciplinary support can be formed into unified action for a sustainability minor degree.

Based on our interviews and preliminary course evaluations in the College of Arts and Sciences and the Haworth College of Business, we found sustainability instruction practiced in sixteen departments. This shows that professor and department interest in sustainability is
already present and by using existing courses that include sustainability topics, an interdisciplinary sustainability minor curriculum can be formed.

Another question in our survey revealed 27% of professors thought their online course descriptions do not accurately describe their course. In order for students to be aware of what courses are offered, the course descriptions need to be updated online. Accurate descriptions of classes in the online course catalogue are important because courses with a sustainability emphasis need to be easily identified to help students select and sign up; students may not be aware of sustainability courses offered in many departments and colleges at WMU. Addressing this problem would help the students register more accurately for classes they are interested in. We are proposing the Graham Environmental Sustainability Institute at The University of Michigan website as an example to be used during the development of a new WMU website. Greater research is needed to fully organize WMU’s courses, but with our preliminary data we were able to create a list of course summaries and topics for discussion (Appendix 4).

On the website for the Association for the Advancement of Sustainability in Higher Education (ASASHE) twenty-one universities are listed for their sustainability minor degree programs. We were able to talk with representatives from four universities. For consistency, our questions (Appendix 7) guided our conversations with them. As stated in the previous section V, their successful practices reveal ways WMU can research, adapt, implement. Activation of this effort, and recent WMU sustainability commitments revealed in section IV, point us to a conclusion; WMU is ready for a sustainability degree program. We discovered that two of the universities’ sustainability minors were initiated by students. Similar to the work we have done in our research, students reviewed the courses that included sustainability
content at their respected universities. The student initiative was taken over by faculty and administration to create new and/or expand existing courses to be included in the sustainability minor.

In our anonymous online survey we provided a section for the professors to comment on our project. We received four comments:

- “Although interesting in a general sense, this project (from my perspective) has been very poorly executed. It is an inappropriate starting point for a serious consideration of sustainability curricula at WMU.”

- “I was pleasantly surprised when I was told that there are 60 instructors who were being asked about the sustainability content of their courses. It's important that WMU incorporate sustainability in our preparation for future citizens.”

- “Important work...I'm glad you are doing this and encourage you to be real agents of change on campus and in Kalamazoo with respect to advocating for sustainable practices. Keep up the pressure on the administration to make our campus a more sustainable one.”

- “Interesting project. I hadn't thought of the study of multicultural literature as sustaining a culture, but it is.”

All of these comments show that professors see the significance of sustainability on and off campus. Although the first comment focuses on the poor execution of our research, they still see the importance of sustainability curriculum at WMU and the need for formal action to build on what we discovered during our preliminary investigation. It is also significant to note that this project allowed some professors to think about their classes in different way than they originally thought. In the interviews, many professors stated they will look at their classes differently, now they have an expanded perspective on sustainability. These comments are
encouraging; professors may see additional possibilities for their classes and connecting them to sustainability.

In section III, we referred to three definitions of sustainability and two figures symbolizing sustainability (Appendix 6). More research will be needed to create a campus-wide definition and vision of sustainability. Here are our results from the feedback concerning the definitions and figures:

- 80% agree (including 40% strongly agree) with this definition of sustainability, "We in Sustainable Seattle define the term “sustainability” as "long-term cultural, economic, and environmental health and vitality." We emphasize the "long-term" part of that definition, together with the importance of linking our social, financial, and environmental well-being." -Sustainable Seattle, 1993

- 80% agree (including 47% strongly agreeing) with this definition of sustainability, "a form of development or progress that meets the needs of the present without compromising the ability of future generations to meet their own needs." -World Commission on Environment and Development, 1987

- 73% agree (including 40% strongly agreeing) with this definition of sustainability, "A sustainable society would be interested in qualitative development, not physical expansion. It would use material growth as a considered tool, not as a perpetual mandate. It would be neither for nor against growth, rather it would begin to discriminate kinds of growth and purposes for growth. Before this society would decide on a specific growth proposal, it would ask what the growth is for, and who would benefit, and what it would cost, and how long it would last, and whether it could be accommodated by the sources and sinks of the planet." -Donella Meadows, et al., 1999
• Results from figure below (Figure 1) reflecting personal vision of sustainability:
• Results from the figure below (Figure 2) reflecting personal vision of sustainability:
With WMU students and The Board of Trustees passing the Sustainability Fund Initiative, President Dunn signing the Talloires Declaration and the PUSC creating the SSIR, and our preliminary research, it is clear that sustainability is an important issue. Administration, students, and faculty need to cultivate this positive energy and excitement to create a campus-wide culture of sustainability, including sustainability across the curriculum and offering a sustainability minor.

**VII. Limitations of Our Analysis & Future Work**

We faced multiple challenges while conducting our research. There was a limited amount of professors we were able to interview. This might have been avoided if the department chairs were notified of our research project before we sent out our first e-mail. With their support, the faculty may have been more willing to return our e-mail requests and to discuss their courses with us. This may have kept the faculty from questioning the legitimacy of our project as well as quelled any skepticism.

We understand we could have followed a more bureaucratic procedure, our lack of experience and time led us to use our own method for accumulating a list of sustainability courses offered at WMU (as described in Section III). This is a class project and should not have been overly criticized. One of the next proposed actions is to conduct a more formal procedural and review process. To our knowledge, this was the first attempt by WMU students to discover some faculty attitudes and curriculum connections to sustainability. An atmosphere that encourages more student involvement with activities promoting sustainability needs to be present at WMU.
The formulation and planning phase of our project took more time than expected due to little prior research available at WMU for us to use for guidance. Also with only two members in our group, each of us had a large workload. For future ENVS410 classes, we suggest expanding the group size to three people so that more interviews could be conducted and other tasks could be spread out.

For groups that decide to use our research as a stepping stone for further projects, we suggest expanding the faculty survey to include all departments and colleges at WMU. There are classes in other colleges, and some in the College of Arts and Sciences we did not have the time to investigate. Polling data from these other departments will be essential before an interdisciplinary sustainability program can be created. Also, investigating courses that do not include the topic of sustainability but have the potential to incorporate it into the coursework would also be a worthwhile study. We have found that once professors are confronted with the idea of sustainability in their courses, they see ways that it could be included in their classes. We also suggest, ask the professors if they would be interested in being a part of a sustainability minor program. Another suggestion, while developing a questionnaire to be used during the face-to-face discussion with faculty, try to use questions without open-ended responses. We had a tremendous amount of information from each professor and it is difficult to use as statistical data because the responses were too long and unique.

In order to garner enough support to create a minor degree program in sustainability the student body must get behind the idea. Surveying student interest in sustainability and their opinions about the creation of a sustainability minor degree program would help show support to the administration. Another idea, survey students in the classes of the professors
we interviewed to see if their attitudes about the courses are similar to the professors.

Obtaining more information from other universities who have created sustainability minors and using their surveys as useful guides for WMU activities.

VIII. Conclusions/Recommendations

This was a preliminary investigation by students to evaluate and influence the awareness and application of sustainability in The College of Arts and Sciences and The Haworth College of Business. To the best of our knowledge, this is the first contact between students and faculty to discuss sustainability topics in the classroom. Since a lot of information was acquired in a short amount of time, the continuation of this research must be from a group of at least 10 people to conduct a more formal evaluation. We can also learn from other universities who have created a sustainability minor program to guide WMU’s process. We can ask universities other questions about their successes with sustainability on campus: e.g., collecting information about surveys they used to gather data. More research is needed on student desire and support for an interdisciplinary sustainability minor.

Our short term goals for this project:

- Collect more data from other universities who have created a sustainability minor program. This data is very useful, we can learn from their successes and failures, we can adapt it for WMU.
- Create a website like University of Michigan’s Graham Institute of Environmental Sustainability. This is an excellent resource for current and future students to find out what courses and degrees are available in their interest of study.
- Get all faculty involved. With the passing of the SFI, now is the time to gain more faculty support and awareness. Similar to Dr. Harold Glasser’s “Sustainability in the Curriculum” luncheon, more opportunities need to be available for faculty to discuss future sustainability in WMU’s curriculum: e.g., faculty workshops and roundtables.
Our long term goals for this project:

- Create sustainability workshops for faculty, administration and students.
- Continuing research with a more formal process and involving at least ten students. Students could earn money or credit hours for collecting and evaluating sustainability course information across all colleges at WMU; make this a future SFI project.
- Develop a committee to review course curriculum for a Sustainability Minor program. The program would include community service hours and/or community outreach programs to teach high schools and local teens about sustainability.
IX. References


<http://web.pacific.edu/x26083.xml>.

"Minors in Sustainability | Association for the Advancement of Sustainability in Higher Education (AASHE)." Association for the Advancement of Sustainability in Higher Education | News, Resources, Events, and Assessment Tools for the Campus Sustainability Community. AASHE. Web. 9 Apr. 2010.


Saviz, Dr. Camilia. "Best Practices at The University of the Pacific." Telephone interview. 12 Apr. 2010.


Appendix 1: The Talloires Declaration

THE TALLOIRES DECLARATION

WE, THE PRESIDENTS, RECTORS, AND VICE CHANCELLORS OF UNIVERSITIES FROM ALL REGIONS OF THE WORLD are deeply concerned about the unprecedented scale and speed of environmental pollution and degradation, and the depletion of natural resources.

Local, regional, and global air and water pollution; accumulation and distribution of toxic wastes; destruction and depletion of forests, soil, and water; depletion of the ozone layer and emission of “green house” gases threaten the survival of humans and thousands of other living species, the integrity of the earth and its biodiversity, the security of nations, and the heritage of future generations. These environmental changes are caused by inequitable and unsustainable production and consumption patterns that aggravate poverty in many regions of the world.

We believe that urgent actions are needed to address these fundamental problems and reverse the trends. Stabilization of human population, adoption of environmentally sound industrial and agricultural technologies, reforestation, and ecological restoration are crucial elements in creating an equitable and sustainable future for all humankind in harmony with nature.

Universities have a major role in the education, research, policy formation, and information exchange necessary to make these goals possible. Thus, university leaders must initiate and support mobilization of internal and external resources so that their institutions respond to this urgent challenge.

WE, THEREFORE, AGREE TO TAKE THE FOLLOWING ACTIONS:

1) Use every opportunity to raise public, government, industry, foundation, and university awareness by openly addressing the urgent need to move toward an environmentally sustainable future.

2) Encourage all universities to engage in education, research, policy formation, and information exchange on population, environment, and development to move toward global sustainability.

3) Establish programs to produce expertise in environmental management, sustainable economic development, population, and related fields to ensure that all university graduates are environmentally literate and have the awareness and understanding to be ecologically responsible citizens.

4) Create programs to develop the capability of university faculty to teach environmental literacy to all undergraduate, graduate, and professional students.

5) Set an example of environmental responsibility by establishing institutional ecology policies and practices of resource conservation, recycling, waste reduction, and environmentally sound operations.

6) Encourage involvement of government, foundations, and industry in supporting interdisciplinary research, education, policy formation, and information exchange in environmentally sustainable development. Expand work with community and nongovernmental organizations to assist in finding solutions to environmental problems.

7) Convene university faculty and administrators with environmental practitioners to develop interdisciplinary approaches to curricula, research initiatives, operations, and outreach activities that support an environmentally sustainable future.

8) Establish partnerships with primary and secondary schools to help develop the capacity for interdisciplinary teaching about population, environment, and sustainable development.

9) Work with national and international organizations to promote a worldwide university effort toward a sustainable future.

10) Establish a Secretariat and a steering committee to continue this momentum, and to inform and support each other’s efforts in carrying out this declaration.

President

Title

SIGNATORY

Western Michigan University

Institution

ULSF

Association Of University Leaders For A Sustainable Future

January 1, 2008

DATE
## Table 1. Prioritized Strategic Sustainability Initiatives

<table>
<thead>
<tr>
<th>Campus Category</th>
<th>Recommended Initiatives</th>
<th>Technical (T) or Planned (P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Governance &amp; Administrative</td>
<td>1. Create a single structure for coordinating and implementing campus sustainability initiatives that transcend academics and operations and reports directly to the President.</td>
<td>T</td>
</tr>
<tr>
<td></td>
<td>2. Perform and Institutionalize a Campus Sustainability Assessment process, which is directly tied to improving practice and policy (see the Campus Sustainability Assessment Project Website for details: <a href="http://esap.envwmich.edu/pages/res_guidelines.html">http://esap.envwmich.edu/pages/res_guidelines.html</a>)</td>
<td>P</td>
</tr>
<tr>
<td></td>
<td>3. Review the WMU Master Plan with an emphasis on addressing and improving campus sustainability (biennially or annually).</td>
<td>T</td>
</tr>
<tr>
<td>II. Operations &amp; In-reach</td>
<td>1. Develop a comprehensive campus food-waste reduction strategy and policies. This includes creating a campus composting pilot as a prelude to creating a full-scale composting system.</td>
<td>P</td>
</tr>
<tr>
<td></td>
<td>2. Model green building principles when developing new residential life opportunities.</td>
<td>T</td>
</tr>
<tr>
<td></td>
<td>3. Review and improve the Campus Recycling Program &amp; the Trash to Treasures Program (make recycling more accessible, increase bin availability, etc.).</td>
<td>T</td>
</tr>
<tr>
<td></td>
<td>4. Begin phasing in battery electric, hybrid, &amp; plug-in HE vehicles into the WMU fleet.</td>
<td>T</td>
</tr>
<tr>
<td></td>
<td>5. Review campus water-saving measures and water use with an eye toward creating a new, comprehensive campus water reduction plan and policies.</td>
<td>T/P</td>
</tr>
<tr>
<td>III. Community Service &amp; Outreach</td>
<td>1. Create a cooperative, community sustainability planning initiative starting with local governments &amp; educational institutions in Portage and Kalamazoo (preliminary discussions are now underway to launch this effort by starting with exchanging best-practices).</td>
<td>P</td>
</tr>
<tr>
<td></td>
<td>2. Integrate sustainability into Student Orientation materials &amp; offerings (use peer outreach).</td>
<td>T</td>
</tr>
<tr>
<td></td>
<td>3. Create monthly or bimonthly Campus Sustainability Roundtables (possibly at lunch) open to the entire campus community, sponsored by the President’s Office.</td>
<td>T</td>
</tr>
<tr>
<td></td>
<td>4. Educate Residence Hall Directors on sustainability issues and opportunities.</td>
<td>T</td>
</tr>
<tr>
<td>IV. Curriculum</td>
<td>1. Following WMU’s “General Principles of Curriculum Change” (GpCC) &amp; using the online Curriculum Change Guide, integrate sustainability into all curricula &amp; throughout every college.</td>
<td>P</td>
</tr>
<tr>
<td></td>
<td>2. Create more opportunities for structured internships, projects, theses, etc., for students to collaborate with staff, administrators, and faculty to address key campus sustainability issues.</td>
<td>T</td>
</tr>
<tr>
<td></td>
<td>3. Create Summer Faculty Development Workshops for facilitating integration and infusion of sustainability throughout the curriculum (one possibility would be to start with the FYS).</td>
<td>T/P</td>
</tr>
<tr>
<td>V. Research (Unprioritized List)*</td>
<td>4. Following WMU’s GpCC, develop new environments- &amp; sustainability-oriented degree combinations, minors, &amp; concentrations (examples include: Green Business &amp; ENVs; Ecological Engineering/Green Design &amp; ENVs; Education for Sustainable Development/Environmental Education &amp; ENVs, etc.). Special opportunities exist for new/restructured undergraduate &amp; graduate programs in &quot;Green Materials, Design, Energy, &amp; Manufacturing&quot; &amp; &quot;Education for Sustainability Teacher Training&quot;.</td>
<td>P</td>
</tr>
</tbody>
</table>

*This list is unprioritized because research is a special category. The PUSC Research Subcommittee believes that in order to initiate a successful sustainability research initiative, WMU will have to address two sets of issues (Structural & Strategic) before attempting to prioritize a list of potential research opportunities.
Appendix 3: First Contact E-mail to Professors

Dear Professor ________,

For our Environmental Studies senior project we are conducting a sustainability evaluation in Western's curriculum. Upon our course review, your class in the course catalog, ________, met our primary guidelines (1) for sustainability in the curriculum (see below). We would like to obtain a copy of your syllabus and meet with you to better understand the content of your course.

We could meet during your office hours, meet at an alternative time, or set up a phone interview—please let us know what works best for you.

Our goal for this project is to gain a better understanding of sustainability education offered at WMU and how in the future, the university can build and expand from this foundation.

Thank you for your help,

Chelsea Keck & Karl Walls

(1)Our guidelines include social sustainability (preservation of cultural diversity, promotion of human rights, ethical behavior), economic sustainability (true cost accountability, corporate responsibility), and/or environmental sustainability (good practices working towards the preservation and coexistence of land, earth, and life).
Appendix 4: Sustainability Course List

Below is list of some courses that promote sustainability. These courses are offered within the College of Arts and Sciences and the Haworth College of Business. We asked the professors to identify the topic relevance and its application based on class periods using our categories of sustainability: Economic (ECON), Social (SOC), and Environmental (ENV). This numerical rating system helped us evaluate how much sustainability information is shared during classroom lecture, discussion, and homework based on each professor’s opinion:

Numerical Rating System
0= Topic is not discussed, or topic is not discussed greatly enough.
1= Topic is discussed
2= Topic is thoroughly discussed

After our analysis of the information, we created short summaries for the courses. These summaries combine information from syllabi and our interviews with the professors who teach the courses.

The “Sustainability” percentage section is an estimate of how much class time each professor devotes to sustainability categories, based on our definition. In some cases, sustainability may not have been an actual term used for the social, economic and environmental sustainability categories.

Sustainability defined as:

- Ecocultural sustainability requires that a society can continually renew itself and its members by supporting (Glasser) (1) social sustainability: the preservation of cultural diversity, promotion of human rights, and ethical behavior, (2) economic sustainability: factoring in true cost accountability and applying corporate responsibility, and (3) environmental sustainability: incorporate good practices working towards the preservation and coexistence of land, earth, and life.

<table>
<thead>
<tr>
<th></th>
<th>ECON</th>
<th>SOC</th>
<th>ENV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amidon ENGL 4840</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

**Multi-Cultural American Literature for Children:** Developing an understanding of American cultural diversity. Exploring universal values through literature that reflects multi-cultural heritage.

**Topics include:** under-represented cultures and cultural identification.

**Sustainability:** 100%
### Appendix 4: Sustainability Course List

<table>
<thead>
<tr>
<th>ECON</th>
<th>SOC</th>
<th>ENV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anemone</td>
<td>ANTH1500</td>
<td>0</td>
</tr>
</tbody>
</table>
| **Race, Biology and Culture:** Study of human diversity in both biological and cultural dimensions. How humans have biologically and culturally adapted to life in different environments.  
**Topics include:** genetics and cell biology, cultural diversity, human rights, and the American-way system.  
**Sustainability:** 33% |
| Bailey | ENVS3200 | 2 | 2 | 2 |
| **Environmental Writings:** Study of our environment through reading and discussion.  
Reading classic novels of famous nature authors such as Aldo Leopold, Henry David Thoreau, Carl Safina, Barbara Kingsolver, and Richard Preston.  
**Topics include:** land ethics, cultural, ethical and economic behaviors, and human world vs. natural world.  
**Sustainability:** 30% directly |
| Bober | ANTH 3440 | 0 | 1 | 1 |
| **World Archeology:** Focuses on the reasons for cultural success and failures. Looks at the history of cultures and their transitions into farming and agriculture.  
**Topics include:** development of complex societies, effects of farming, and learning curves of different cultures.  
**Sustainability:** 15% |
| Chamberlin | REL 1000 | 0 | 0 | 2 |
| **Religions of the World:** Analysis of cultural aspects of world religions (religious traditions, religion in political and social institutions)  
**Topics include:** traditions stemming from cultural location and cultural materialism.  
**Sustainability:** Embedded within course. |
| Gillespie | GEOS 3220 | 1 | 0 | 2 |
| **Ocean Systems:** Pertains to scientific focus on life and origins of the ocean and earth.  
Oceanic diversity and the effects of human interaction and use are also taught.  
**Topics include:** global warming and population growth.  
**Sustainability:** 65% |
Appendix 4: Sustainability Course List

Glatz  PHIL3020  2  2  1

**Introduction to Ethics**: Introduces moral philosophy. Moral concepts are discussed such as good, bad, right wrong, virtuous, and vicious. Course considers how we create and understand these moral standards.

**Topics include**: ethical theory, applied ethics (abortion, duty to aid), moral duty, and normative ethics.

**Sustainability**: Embedded within course.

Glasser  ENVS4100  2  2  2

**Appropriate Technologies and Sustainability**: Learning how to see and understand our campus as an ecocultural system. Identify unsustainable policies and practices on campus, learn how to better understand the causes of the problems, develop levers and strategies for positive change.

**Topics include**: sustainability, ecological design, social-learning, environmental management systems, and strategies for sustainable transformation.

**Sustainability**: 100%

Hallett  GEOG 2050  2  2  2

**Human Geography**: Overview of topics including economics, demographics, the environment, culture, politics and agriculture, discussion about the repercussions of technological advancement on the human population and the environment.

**Topics include**: non-sustainable practices, labor exploitation, unequal distribution of resources, and value added goods.

**Sustainability**: 75%

Hampton  GEOS 2200  1  0  1

**Climate Change: Geological Perspective**: An overview of the historical changes in climate focused on flocculating patterns of the Earth’s. Discussion about how implications of present environmental practices on the future of climate change. Group project, class readings and oral presentation focusing on environmental climate change problems.

**Topics include**: present and future change in climate and management of climate change.

**Sustainability**: 20%
Appendix 4: Sustainability Course List

<table>
<thead>
<tr>
<th>Instructor</th>
<th>Course Code</th>
<th>Credits</th>
<th>ECON</th>
<th>SOC</th>
<th>ENV</th>
</tr>
</thead>
<tbody>
<tr>
<td>He</td>
<td>GEOG3500</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td><strong>Conservation and Environmental Management</strong>: Express different aspects of sustainability, in debate. Management of natural resources and conflicts between environmental protection and economic development. <strong>Topics include</strong>: water resources, forests, air quality, agriculture, soil erosion, and wildlife habitat. <strong>Sustainability</strong>: 100%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heasley</td>
<td>ENVS1100</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td><strong>Intro to Environmental Studies</strong>: Nature and Society: Ecological and social histories shape how we act in and think about the world around us today. <strong>Topics include</strong>: water wars, global climate change, persistent organic pollutants, and acting for change. <strong>Sustainability</strong>: 100%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heasley</td>
<td>ENVS3180</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td><strong>American Environmental History</strong>: Landscapes of Environmentalism, Ecology and transformation of landscapes in North America. <strong>Topics include</strong>: attitudes toward the environment, environmental change, and environmental politics in North America. <strong>Sustainability</strong>: 100%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hoffman</td>
<td>PSCI3040</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td><strong>Introduction to Public Policy</strong>: Analyzing the process of public policy making, develop substantive expertise in a policy area, conduct research. Each student analyzes the policy process in a domestic policy issue area of choice. <strong>Topics include</strong>: environment, housing and community development, agriculture, education, and energy. <strong>Sustainability</strong>: Difficult to rate. Topics are discussed on a student interest basis.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Houghton</td>
<td>PSCI3000</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Urban Politics in the US</strong>: Studying the Social &amp; Economic conditions of the cities, and actions of state and federal governments. <strong>Topics include</strong>: cultural diversity, immigration, incomes, racial groups, good practices, Hurricane Katrina and the Detroit riot of 1967. <strong>Sustainability</strong>: 50%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Appendix 4: Sustainability Course List

<table>
<thead>
<tr>
<th>Instructor</th>
<th>Course Code</th>
<th>ECON</th>
<th>SOC</th>
<th>ENV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ide</td>
<td>BIO 1051</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>
|            | **Environmental Biology**: Understanding the human impacts on the environment post modern technologies and ways to correct and prevent negative impact caused by such impacts.  
**Topics include**: Kalamazoo River pollution, energy, and waste products.  
**Sustainability**: 50% |
| Keele      | PSCI4940    | 2    | 2   | 2   |
|            | **Environmental Law**: Understand environmental law and process, discuss law regulatory policy choices. How the law is moved, what is legal, what is not legal.  
**Topics include**: climate change, ANWAR oil drilling, solid waste, animal verses human rights, CERCLA, water & air Pollution.  
**Sustainability**: Difficult to rate. Topics are discussed on a student interest basis. |
| Keele      | ENVS3400    | 2    | 2   | 2   |
|            | **Environmental Policy**: Understanding and predicating political power and distribution of goods and services. Explore policy formation, development and implementation.  
**Topics include**: air, water, toxic and hazardous waste, energy and climate change.  
**Sustainability**: 93% |
| Kominz     | GEOS 3220   | 1    | 0   | 2   |
|            | **Ocean Systems**: Pertains to scientific focus on life and origins of the ocean and earth. Oceanic diversity and the effects of human interaction and use are also taught.  
**Topics include**: Greenhouse effect.  
**Sustainability**: 65% |
| Koretsky   | ENVS4500    | 1    | 1   | 2   |
|            | **Senior Seminar** (Course varies each semester and by professor): Class devoted to sampling and analyzing water quality and if remediation of the water quality is possible.  
**Topics Include**: Preserve biodiversity of aquatic lake and lakescape, human interaction and influence of ecosystems.  
**Sustainability**: Embedded within course. |
Appendix 4: Sustainability Course List

<table>
<thead>
<tr>
<th>Instructor</th>
<th>Course Code</th>
<th>ECON</th>
<th>SOC</th>
<th>ENV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landosky</td>
<td>ENVS2250</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
|            | **Environmental Ecology:** Understanding the function and structure of ecological systems. How they relate to environmental problems and how solutions to those problems might be developed. Understanding how biotic systems work in the natural environment. How humans interact with the natural world.  
**Topics include:** ecology and evolution, human and population growth, and diversity of life and its threats.  
**Sustainability:** 50% |
| Landosky   | ENVS2260    | 0    | 0   | 2   |
|            | **Environmental Ecology Field Lab:** An introduction to ecological systems in Southwest Michigan. Explores the entire process of science. Design experiments, collect data, enter and analyze your data and make conclusions. This course can change each semester.  
**Topics include:** effects of global warming and climate change on tree populations, and investigate tree genetics.  
**Sustainability:** 10% |
| Lemberg    | GEOG 2050   | 2    | 2   | 2   |
|            | **Human Geography:** Overview of topics including economics, demographics, the environment, culture, politics and agriculture, discussion about the repercussions of technological advancement on the human population and the environment  
**Topics include:** population density, industrial impact, cultural identity, and globalization.  
**Sustainability:** 75% |
| Lyon-Callo | ANTH2400    | 2    | 2   | 2   |
|            | **Principles of Cultural Anthropology:** Exploring the history, methods, tools used, and the field of cultural anthropology. Understand how to “know” and interpret information about cultures.  
**Topics include:** globalization, understanding global inequities and resistance, race/ethnicity, and transformed communities.  
**Sustainability:** 90% |
Appendix 4: Sustainability Course List

MacArthur  GEOG 1000  2  0  2
World Ecological Problems: An overview of existing relationships and conflicts between society and the natural world and how to understand them through environmental policy.
Topics include: global warming, defining environmental problems, and unsustainable practices.
Sustainability: 66%

Martini  HIST3130  2  2  1
The US History and the World: Discusses US foreign policy and foreign relations. The US’ relationship, influence, and involvement with other countries.
Topics include: human rights, US foreign policy, foreign interests, and US government interests.
Sustainability: 75%

Metro-Rolland  INTL2000  2  2  1
Global and International Studies: Understand the idea and reality of global and international studies. Discuss how global decisions impact local communities, people can be active participants in working towards the positive, verses negative, aspects of globalization.
Topics include: global food, global warming, preservation of cultures, and cultural diversity.
Sustainability: 73%

Moser  ECON 3190  2  0  2
Environmental Economics: Analysis of economic policies and practices focusing on environmental accountability. Group project concentrating on the environmental effects of modern usage of oil and coal
Topics include: accounting for externalities, global population growth, common goods, oil and coal industries, and climate change.
Sustainability: 100%
## Appendix 4: Sustainability Course List

<table>
<thead>
<tr>
<th>Instructor</th>
<th>Course Code</th>
<th>Credits</th>
<th>2</th>
<th>2</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nassaney</td>
<td>ANTH4040</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Neil</td>
<td>Econ 3750</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Paulius</td>
<td>PHYS1020</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Rhodes</td>
<td>COM 2000</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Stamper</td>
<td>MGMT4040</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

### Early Technologies:
Gain understanding of how archaeologists analyze and interpret remains and discover the artifacts from Native Americans in Southwest Michigan.

**Topics include:** advancement of technologies and technologies in different cultures.

**Sustainability:** 15%

### Environmental Economics:
Understanding and evaluating environmental problems using neoclassical economic theories.

**Topics include:** externalities.

**Sustainability:** 64%

### Energy and the Environment:
Stimulate critical thinking and discussion about the effects of energy and technology on society and the environment.

**Topics include:** energy, fossil fuels, pollution, conservation, alternative energy, transportation, and nuclear power.

**Sustainability:** 100%

### Human Communication Theory:
Major approaches and theories concerning the study of human communication are covered.

**Topics include:** human rights and ethical behavior.

**Sustainability:** 60%

### Business and Society:
Introduces concepts of social responsibility and ethics in strategic business settings. Explore viewpoints regarding the nature and limits of corporate social responsibility.

**Topics include:** ethics theory, social corporate responsibility, advertising, and environmental issues.

**Sustainability:** 93%
**Appendix 4: Sustainability Course List**

<table>
<thead>
<tr>
<th>Instructor</th>
<th>Course Code</th>
<th>Credits</th>
<th>Hours</th>
<th>Sustainability (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stamper</td>
<td>MGMT3500</td>
<td>3</td>
<td>3</td>
<td>80%</td>
</tr>
<tr>
<td>Straniero</td>
<td>MKTG4490</td>
<td>3</td>
<td>3</td>
<td>45%</td>
</tr>
<tr>
<td>Ready</td>
<td>ANTH 3450</td>
<td>2</td>
<td>2</td>
<td>90%</td>
</tr>
<tr>
<td>Veeck</td>
<td>GEOG 1000</td>
<td>2</td>
<td>2</td>
<td>66%</td>
</tr>
<tr>
<td>Vonhof</td>
<td>BIOS 4430</td>
<td>2</td>
<td>2</td>
<td>85%</td>
</tr>
</tbody>
</table>

**Managing Diversity in Organizations:** Necessary skills and knowledge are important to the increasingly diverse workplace. The impacts of diversity are explored.

**Topics include:** diversity (race, gender, disabilities, religion, age, culture, etc).

**Sustainability:** 80%

**Food and Consumer Package Goods Marketing Issues and Strategies:** Examines the strategies in the marketing of food and consumer package goods. Students create a product and packaging of the product.

**Topics include:** sustainable packaging, product development, and marketing strategies.

**Sustainability:** 45%

**Community and Campus:** Viewing education, schooling and youth development as social and cultural processes and examining issues of educational attainment derived from social patterns by race, ethnicity and class.

**Topics include:** patterns of disadvantage, the Kalamazoo Promise, variability in Minority School Performance.

**Sustainability:** 90%

**World Ecological Problems:** An overview of existing relationships and conflicts between society and the natural world and how to understand them through environmental policy.

**Topics include:** globalization.

**Sustainability:** 66%

**Conservation Biology:** Preservation of biodiversity and sustainable practices towards the Earth. The effects of human actions on biomes and the protection of biodiversity.

**Topics include:** sustainable development, habitat degradation and fragmentation, conservation values.

**Sustainability:** 85%
**Appendix 4: Sustainability Course List**

<table>
<thead>
<tr>
<th>ECON</th>
<th>SOC</th>
<th>ENV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whately</td>
<td>GEOG 1000</td>
<td>2</td>
</tr>
</tbody>
</table>

**World Ecological Problems**: An overview of existing relationships and conflicts between society and the natural world and how to understand them through environmental policy.

**Topics include**: climate change, land use, air quality, water quality, and resource allocation.

**Sustainability**: 60%

<table>
<thead>
<tr>
<th>ECON</th>
<th>SOC</th>
<th>ENV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilson</td>
<td>REL 1000</td>
<td>0</td>
</tr>
</tbody>
</table>

**Religions of the World**: Analysis of cultural aspects of world religions (religious traditions, religion in political and social institutions)

**Topics include**: differing rituals, scriptures, and mythologies.

**Sustainability**: Embedded within course.

<table>
<thead>
<tr>
<th>ECON</th>
<th>SOC</th>
<th>ENV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wong</td>
<td>COM 4740</td>
<td>0</td>
</tr>
</tbody>
</table>

**Intercultural Communication**: Focuses on effective communication, problems and opportunities in an inter-cultural situation. An overview of the future of cultures; encompassing cultural preservation as well as cultural adaption and conformity.

**Topics include**: cultural Perceptions, values and beliefs, and nonverbal behaviors.

**Sustainability**: 85%
**Appendix 5:** Sample Thank You E-mail to Professors

Professor _______,

Thank you for taking the time to meet and discuss sustainability in your courses. The information was very helpful in the completion of our senior project. It would be greatly appreciated if you took the time to participate in a 5 minute anonymous survey pertaining to your views about sustainability and our project. No personal data is being collected.

If you are interested in expanding sustainability in the curriculum Professor Glasser is providing a luncheon May 4th. Please contact him for more details.

http://www.surveymonkey.com/s/sustainabilityseniorproject

Thanks again for your time,

Chelsea Keck & Karl Walls
Appendix 6: Anonymous Sustainability Online Survey

1. Definition:
Ecocultural sustainability requires that a society can continually renew itself and its members by supporting (1) social sustainability: the preservation of cultural diversity, promotion of human rights, and ethical behavior, (2) economic sustainability: factoring in true cost accountability and applying corporate responsibility, and (3) environmental sustainability: incorporate good practices working towards the preservation and coexistence of land, earth, and life.

Sustainability as defined above, is an important issue to you personally.
- Strongly Agree
- Disagree
- No Opinion
- Agree
- Strongly Agree

2. There are areas of expansion pertaining to sustainability that could be added to your course.
- Strongly Agree
- Disagree
- No Opinion
- Agree
- Strongly Agree

3. There are areas of expansion pertaining to sustainability that could be added to your department.
- Strongly Agree
- Disagree
- No Opinion
- Agree
- Strongly Agree

4. Your course description on the WMU website accurately describes the class you teach.
- Strongly Agree
- Disagree
- No Opinion
- Agree
- Strongly Agree

Sustainability is subject to much academic debate, and even experts in the field do not provide us with a unified definition. In order to have an effective dialogue about sustainability in Southwest Michigan, the following five questions challenge you to express your own opinion of the term's meaning.

5. "We in Sustainable Seattle define the term "sustainability" as "long-term cultural, economic, and environmental health and vitality." We emphasize the "long-term" part of that definition, together with the importance of linking our social, financial, and environmental well-being." -Sustainable Seattle, 1993
- Strongly Agree
- Disagree
- No Opinion
- Agree
- Strongly Agree
Appendix 6: Anonymous Sustainability Online Survey

6. Sustainability is "a form of development or progress that meets the needs of the present without compromising the ability of future generations to meet their own needs." - World Commission on Environment and Development, 1987

[Multiple choice options]

7. "A sustainable society would be interested in qualitative development, not physical expansion. It would use material growth as a considered tool, not as a perpetual mandate. It would be neither for nor against growth, rather it would begin to discriminate kinds of growth and purposes for growth. Before this society would decide on a specific growth proposal, it would ask what the growth is for, and who would benefit, and what it would cost, and how long it would last, and whether it could be accommodated by the sources and sinks of the planet." - Donella Meadows, et al., 1992

[Multiple choice options]

8. Please describe how the figure below (Figure 1) reflects your vision of sustainability.

[Multiple choice options]

Figure 1

[Diagram showing the intersection of sustainability, economy, society, and environment]
Appendix 6: Anonymous Sustainability Online Survey

9. Please describe how the figure below (Figure 2) reflects your vision of sustainability.

- Not At All
- Poorly
- No Opinion
- Well
- Very Well

Figure 2

10. If none of the previous definitions or representations of sustainability are adequate, please describe what sustainability means to you and/or your organization.

11. Comments concerning this survey or the project as a whole:
Appendix 7: Sample Phone Interview with Other Universities

University: University of Minnesota Twin Cities

Who I am speaking with: the Sustainability Director, Beth Mercer-Taylor

Hi my name is Chelsea Keck and I am a student at Western Michigan University. I am doing my senior project on creating a sustainability program at Western Michigan University. I am currently researching best practices of a few universities around the country, I found U of M on the aashe.org website. I am interested in information on how the University of Minnesota integrated a sustainability program into its curriculum.

- How did a sustainability program begin at your university? Was it a student initiative, staff, faculty or alumni initiative?
- What was the process and key actors for success of the new program?
- How did you decide the curriculum? In other words, how were the courses chosen?
- Were there any problems you encountered while working on this process? Or any issues we should be aware of?
### Appendix 8: Current University Contact List

<table>
<thead>
<tr>
<th>University</th>
<th>Name</th>
<th>Title</th>
<th>Phone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Florida</td>
<td>Leslie Paul Thiele</td>
<td>Faculty Advisor for Sustainability Studies</td>
<td>(352) 273-2380</td>
</tr>
<tr>
<td>University of Massachusetts Darmouth</td>
<td>Nathan Byrnes</td>
<td>Graduate Assistant in the Office of Campus and Community Sustainability</td>
<td>(508) 910-6484</td>
</tr>
<tr>
<td>University of Minnesota Twin Cities</td>
<td>Beth Mercer-Taylor</td>
<td>Sustainability Education Coordinator</td>
<td>(612) 624-9430</td>
</tr>
<tr>
<td>University of the Pacific</td>
<td>Dr. Camilla Saviz</td>
<td>Civil Engineering Professor, Sustainability Committee Member</td>
<td>(209) 946-3077</td>
</tr>
</tbody>
</table>