

Chapter 2: Curriculum

2.1 Introduction

Incorporating sustainability into an educational institution requires a multidisciplinary approach. Sustainability is the only subject that can successfully marry environmental and earth sciences to sociology, business and economics. The interdisciplinary nature of sustainability creates a unique opportunity for higher education institutions such as Chapman University to incorporate these concepts into the curriculum of many diverse programs. When creating the leaders of tomorrow, it is necessary for the future that these leaders are able to move forward in a manner that can be supported by our planet and society.

The Association for the Advancement of Sustainability in Higher Education (AASHE) has established its mission to provide higher education institutions with the resources, professional development and support in order for them to promote sustainability in everything they do. In 2010, AASHE published a call to action which described why it is imperative that higher education institutions such as Chapman incorporate sustainability wherever possible. This excerpt from the report details the call to action that AASHE has made for the 18 million students enrolled in colleges and universities in the United States:

- Higher education should provide graduates with the skill set, knowledge, and habits of mind for them to prepare for challenges presented by **climate change, loss of biodiversity, a world population of 9 billion in 2050, limited water resources, global health issues, and extreme poverty**.
- Students must understand how the systems of which they are a part (social, economic, and ecological) function and are integrated.
- Curriculum must prepare learners for living sustainably, both professionally and personally. (AASHE, 2010)

One common example of critical thinking is that students understand how social, economic, and ecological systems are connected to daily choices and actions. Many colleges and universities emphasize the current state of economic growth and human expansion, and how graduates can successfully enter the work field and the world in which we live. While it is important for college graduates to understand the field they are entering, it is also important for our future leaders to know what affects the world and what actions are necessary to protect the planet from further degradation. As David Orr, founder of the *Meadowcreek Project*, an environmental education center in Arkansas, has pointed out in the past that the state of today's planet "is not the work of ignorant people. It is, rather, largely the result of work by people with BAs, BSs, LLBs, MBAs, and PhDs" (Orr D. , 1991). Graduates starting a career with any of these degrees could benefit from sustainability curricula. An entire new field and related industries have arisen around environmental issues; for example clean energy, environmental consulting, and energy efficiency. Environmental sustainability requires the cooperation and involvement of professionals in all fields

2.2 History of Curriculum at Chapman

2.2.1 Overview

According to its website, Chapman University strives to foster a culture of sustainability among the facilities, operations, and classrooms of the University (Chapman Facilities Management, 2013). Part of Chapman's mission statement is to create inquiring, ethical, and productive global citizens. These outcome objectives help to mold future leaders as they complete their degrees at Chapman. It

is important that as leaders and global citizens, Chapman alumni have the tools necessary to lead society towards a future that can sustain the ambition that our intellectual growth has generated. It is through this core set of values that sustainability at Chapman has gained momentum. Incorporating these values begins even before a major is declared by a student. The first step that is taken by students is in Freshman Foundation Courses (FFCs). FFCs engage students in interdisciplinary, university-level critical inquiry and reflection, and provide an opportunity for sustainability to be taught at Chapman. Classes such as these are paving the way for more discipline-specific courses on sustainability in the future, and eventually an entire Sustainability major/minor.

2.2.2 Past accomplishments

Courses related to sustainability

Through extensive analysis of course catalogs from the catalog year 2003/2004 on, it was found that the term ‘sustainability’ did not exist in a single course description within Chapman University’s course catalog until 2005. The first class that included sustainability specifically was Philosophy 303: Environmental Ethics, taught by Dr. Virginia Warren. When interviewed, Warren explained that “[sustainability] was just a topic. It had been explained by Al Gore and was a popular issue”. Since 2005, environmental awareness and concern has increased at Chapman and sustainability is a term that is used more frequently in course names and descriptions.

The number of courses related to sustainability and the natural environment were counted throughout 6 course catalogs (**Figure 2.1**). Incidence of relevant courses increases from the first year analyzed to the most recent. The terms ‘environm’ and ‘sustainab’ were searched to allow for multiple variations in terminology. Analysis excluded ‘environm’ occurrences that did not relate to the natural environment; for example, a course description that mentioned ‘the learning environment of a classroom’. Course descriptions that mentioned ‘sustainab’ or ‘environm’ were counted only once in the case that these terms were used more than once.

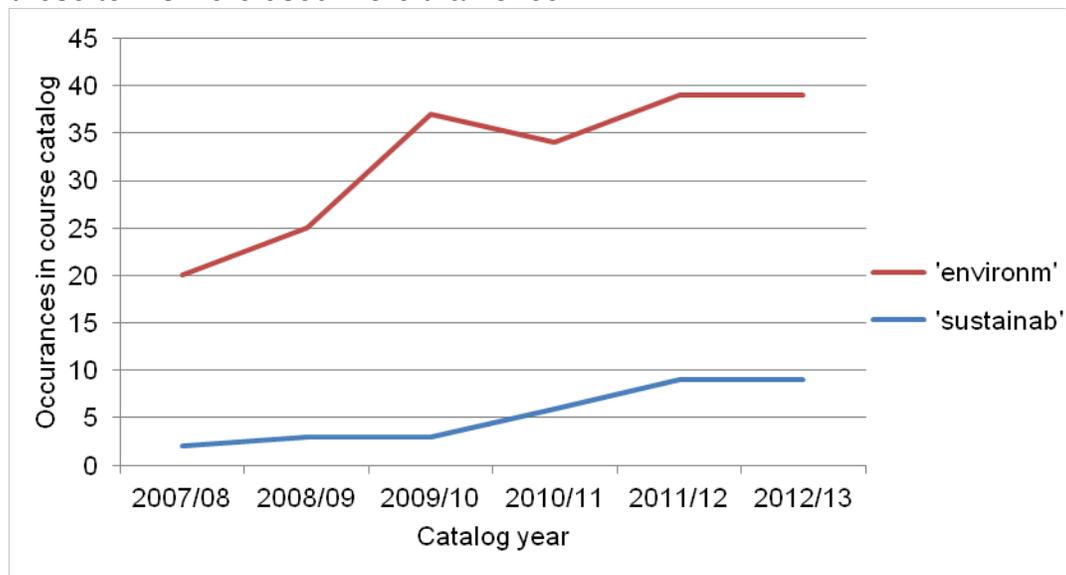


Figure 2.1 The frequency of the terms ‘sustainab’ and ‘environm’ in the course names or descriptions from Fall 2007-Spring 2013.

Programs related to sustainability

Previous to 2009, a B.S. and a B.A. in Environmental Science was available, though it was discontinued after the 2003/2004 catalog year. A perceived demand for further environmental science/policy programs led to the resurgence of the Environmental Science and Policy B.S. degree at Chapman in 2009. To complement the previously existing Environmental Science minor and the Earth and Its Environment General Education Multi/Interdisciplinary Cluster, the Environmental

Studies minor was also introduced in the Fall of 2011. Following the additions of these programs, enrollment has increased yearly (**Figure 2.2**).

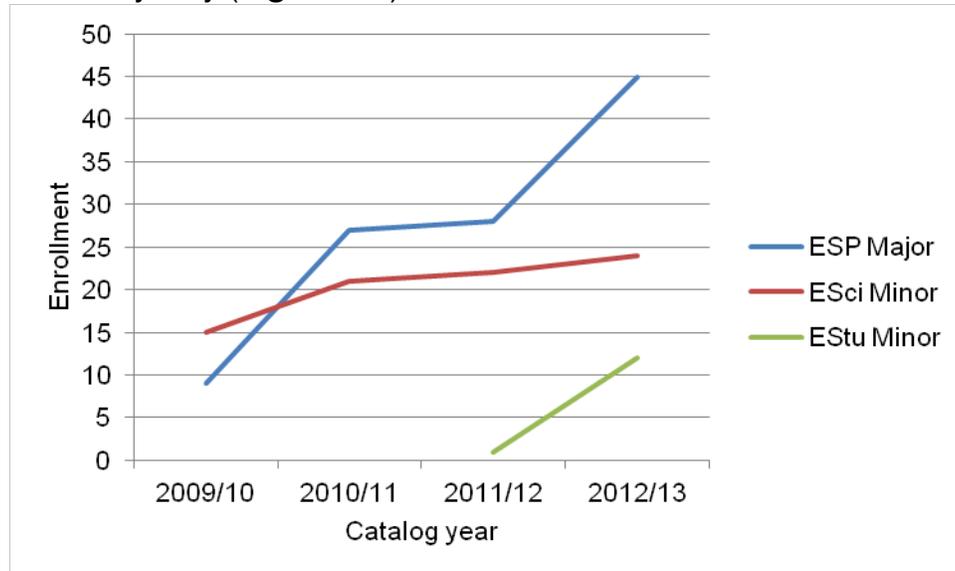


Figure 2.2. Student enrollment during the spring semester of corresponding catalog years in each of the environmental program options; Environmental Science and Policy major (ESP), Environmental Science minor (ESci), and Environmental Studies minor (EStu).

B.S. in Environmental Science and Policy

These program options incorporate sustainability curricula extensively and provide opportunities within many fields pertaining to sustainability if those students choose to become a part of them. The Environmental Science and Policy competency areas include quantitative foundations, science foundations, environmental science and policy, data acquisition and analysis, systems approach to decision making, and communication and service learning. The program also offers the option for students to work as interns in sustainable and environmental businesses both locally in Orange County and nationally. Over the four years that the program has been in existence, many Environmental Science and Policy students have earned prestigious internships through the National Science Foundation as well as the Smithsonian Institution and many more. In 2013, the first full graduating class received a B.S. in Environmental Science and Policy. These students had developed the knowledge and skill set throughout their years at Chapman to produce this campus-wide sustainability audit and have been given the skills to become sustainable leaders in the future.

Minors in Environmental Science/Studies

The environmental minors are designed to offer students a sound foundation in the scientific, political and cultural approaches to studying the environment. Both minors require that students enroll in introductory environmental science and environmental policy classes. Students electing the environmental science minor do so through the Schmid College of Science and Technology and focus on natural science courses such as geology, ecology, biology and chemistry. Students electing the environmental studies minor do so through the Wilkinson College of Humanities and Social Sciences and focus their studies in areas such as sociology, economics, philosophy, and political science.

Earth and Its Environment Cluster

In the absence of a minor, students must complete a multi/interdisciplinary disciplinary cluster to complete their general education requirements. The Earth and its Environment cluster focuses on environmental issues involving the interactions between the natural sciences and social sciences, including biology, chemistry, philosophy, sociology and political science.

2.3 Current Status of Sustainability Curriculum at Chapman

2.3.1 Overview

Although a campus-wide sustainability policy has not yet been created, Chapman University joined the AASHE Sustainability Tracking, Assessment and Rating System program during the 2010/2011 catalog year. This program, also known as the STARS program, is a self-reporting framework through which almost 250 universities nationwide measure their sustainability progress. Having access to AASHE's website and full database provides opportunities for faculty and students to use the many organizational resources, sustainability case studies, databases and assessment tools available. This environmental audit will help with the increasing focus on sustainability efforts at Chapman and help provide the university with a rating of where Chapman currently stands. Registering to be rated by STARS is one way in which Chapman University has committed to sustainable development and to cultivating responsible global citizens.

FFCs focus on critical engagement, exploration and communication related to complex issues than on mastering a body of material. Although a handful of FFCs that incorporate sustainability have come and gone since 2009, of the 28 Freshman Foundation Courses to be offered in the Fall of 2013, 3 of these incorporate sustainability into their subject matter (**Table 2.1**). For example, Dr. Geraldine McNenny, a professor in the College of Educational Studies and chair of the sustainability committee of the faculty senate, began teaching a FFC called 'Imagining a Sustainable Future' in 2010 and has continued to teach multiple sections every year thereafter. In teaching this semester-long course on what living sustainably actually means, Dr. McNenny incorporates multiple areas where sustainability can be incorporated including food and energy sources, transportation systems, and the infrastructure of the society in which we live.

Table 2.1. The 3 of 28 FFCs that include sustainability curricula in course content.

| Freshman Foundation Courses incorporating sustainability: |
|--|
| <i>Lies You Learned in School: Difficult Histories and Critical Theory</i> , Dr. Jim Brown |
| <i>Imagining a Sustainable Future</i> , Dr. Gerri McNenny |
| <i>Globalization, Citizenship, and Consumption</i> , Dr. Gordon Babst |

2.3.2 Increasing awareness of sustainability at Chapman

Concern about sustainability and the environment at Chapman University has been consistent throughout the past. While there has been interest in these subjects, clubs and forums have often faded as quickly as they have been created. In 2010, it became clear to the Department of Student and Campus Life (SCL) that in order to get consistent student involvement for years to come, they needed to create a peer leadership position concerning sustainability. These leaders were elected by Chapman students during regular SCL elections and were placed in charge of the current sustainability initiatives on campus, such as Roots Native Habitat Restoration and other clubs. In 2011, these positions became paid work-study jobs which helped keep students involved and interested as well as to give these positions priority related to other student employment and involvement. Hired students work directly with other students and faculty on current sustainability initiatives and help to plan and organize many campus projects that are sustainability oriented. One such enterprise was the introduction of Community Supported Agriculture (CSA) boxes, which has made it possible for students and faculty to receive locally grown seasonal fruits and vegetables. The hiring of sustainability staff as well as the increase in programs and initiatives has augmented faculty awareness and interest in sustainability.

As faculty cognizance and support grew at Chapman, funding opportunities were created for faculty to add courses, research, and work in direct contact with students who were also interested in sustainability issues. Sustainability interns have been employed throughout the past two years to

manage newly developed student-faculty initiatives such as the campus garden in the dorm area created in 2012, and the Earth n' Stuff Discussion Circle in which students and faculty have weekly discussions on topics relating to the environment and sustainability. Both of these programs were the first to be funded by a program started in 2011 known as The Green Initiative Fund (TGIF). The purpose of TGIF is to enable and empower Chapman University faculty, staff, and students to take an active role in supporting campus sustainability. TGIF provides needed funding for projects that enhance Chapman's sustainability performance and awareness. Funds for TGIF have been supplemented with the sale of Community Supported Agriculture boxes, mentioned above, as 10% of the profit from each CSA box goes to TGIF. In addition to the funds made available through TGIF, faculty members have another opportunity to further sustainability efforts through the Sustainability Across the Curriculum Teaching Grant Program. Initiated in 2012, the purpose of this grant program is to encourage and support curricular and pedagogical development and also to enhance faculty effectiveness in the teaching of sustainability across the curriculum. The first six awards were given for the Interterm and Spring semesters of 2013, granting a total of \$6,500 to faculty developing courses and researching sustainability (**Table 2.2**).

Table 2.2. Faculty funded by the Sustainability Across the Curriculum grant in 2013.

| Faculty | Proposal Title | Actions | Amount |
|--------------------------|--|---------|----------------|
| Lynn Horton | Teaching Sustainability: A Case Study of Ecotourism in Patagonia | Funded | \$1,000 |
| Brian Glaser | Ecopoetics Course, Spring 2013 | Funded | \$1,000 |
| Chris Kim & David Shafie | Supporting Sustainability through the Environmental Science & Policy Senior Capstone: A Chapman University Environmental Audit | Funded | \$1,500 |
| Jeffrey Lindstrom | Systems of Sustainable Development | Funded | \$1,000 |
| Anu Prakash | Sustainable Food Production | Funded | \$1,000 |
| Virginia Warren | Teaching Sustainability in Introduction to Ethics (Phil 104, 2 sections)—Spring 2013 | Funded | \$1,000 |
| Total | | | \$6,500 |

2.3.3 Student status

Since 2007, the integration of course materials as well as the addition of courses specific to sustainability has increased. The recent increase in sustainability awareness and implementation at Chapman has opened doors to many interested students. Despite these efforts, a large percentage of students surveyed for the purpose of this audit have never learned about sustainability at Chapman. **Figure 2.3** shows the percentage of students surveyed that have learned about sustainability while at Chapman, both overall and broken down by school. Survey data show that there is currently a large percentage of students throughout the university that have not been exposed to sustainability concepts.

The goals of the general education requirements at Chapman are thoughtful, thorough, and globally oriented. It is important for inquiring global citizens to learn about the many challenges that our world is facing and to make connections between actions taken, how they affect our planet, and what needs to be done in order to promote a more sustainable society. By incorporating sustainability into the curriculum at Chapman, students will be exposed to these concepts and become better prepared to use them later in life. Learning about sustainability is increasingly valuable as it allows

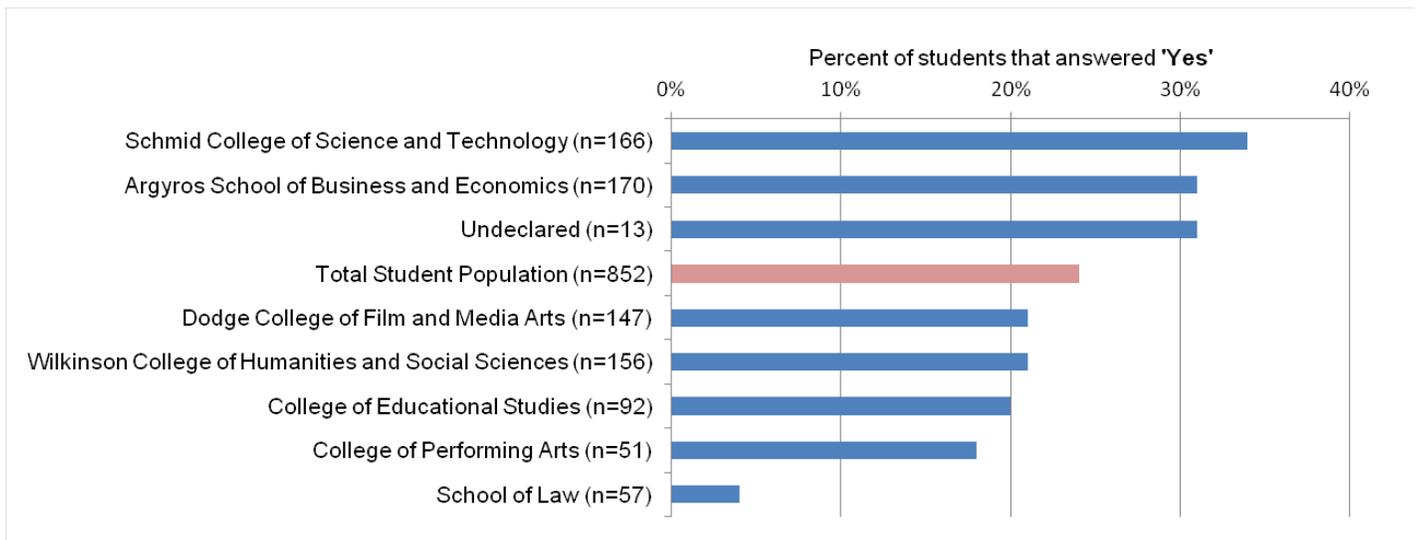


Figure 2.3. Student respondents (n=978) to the question: “During your time at Chapman, have you learned about sustainable practices in any of your classes?”

students to address interdisciplinary topics, develop skills in analyzing complex data, understand how policy works to address these issues, and work to solve problems that are relevant to today’s global society.

2.3.4 Faculty status

While the majority of Chapman faculty and staff feel it is important that sustainability be taught and promoted in higher education institutions, a small percentage of faculty surveyed are currently teaching courses that incorporate sustainability. A faculty survey to gauge interest in sustainability created by Geraldine McNenny and the faculty sustainability committee in 2011 and 2012 has shown a decrease in the percentage of faculty teaching a course that includes sustainability, in theory and/or in practice.

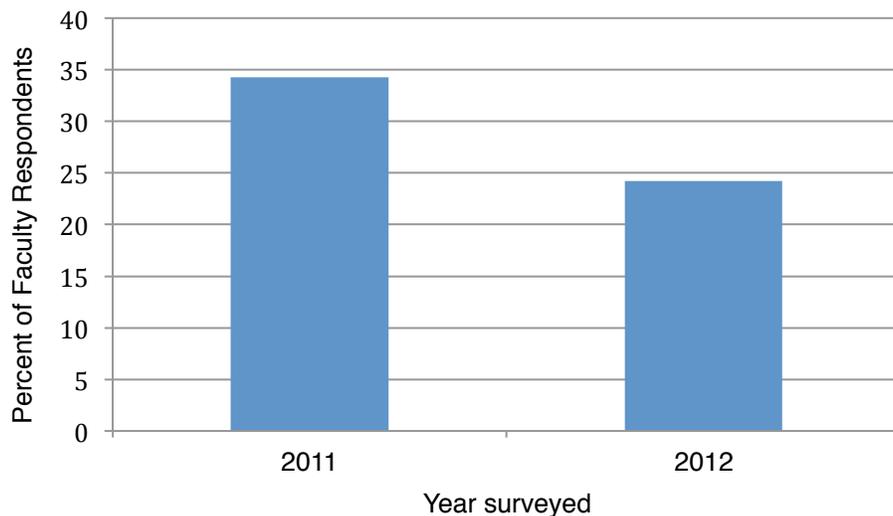


Figure 2.4 Percent of faculty respondents to a faculty interest in sustainability survey during the years 2011 (n=73) and 2012 (n=66) to the question: “Teaching: Do you teach any course that includes sustainability, in theory and/or in practice?”

A survey distributed for this audit revealed that 95.3% of the 344 faculty or staff respondents felt it was either very or somewhat important for sustainability to be taught and promoted in higher

education institutions (**Figure 2.5**). The incorporation of sustainability studies at Chapman will provide a focus for interdisciplinary research and teaching.

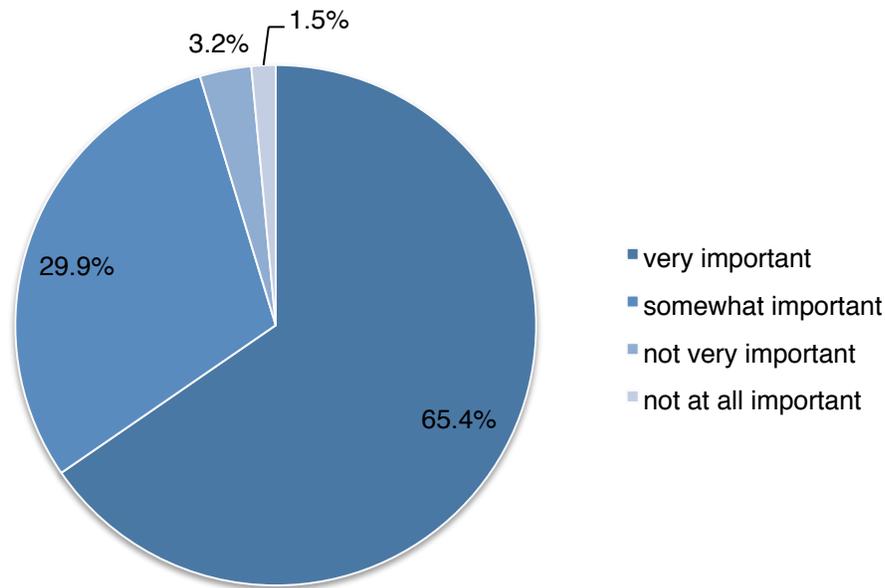


Figure 2.5 Faculty and staff responses (n=386) to the question: “In your opinion, how important is it that sustainability is taught and promoted in higher education institutions such as Chapman?”

2.4 Concluding Assessment

2.4.1 Areas where Chapman is doing well

There have been many positive changes at Chapman in the last 5 years starting with the addition of an Environmental Science and Policy major, as well as Environmental Science and Environmental Studies minors, which allow for the application of many different principles of sustainability. The introduction of sustainability-related Freshman Foundation Courses is also a substantial positive change affecting many incoming, enthusiastic freshman. The impact of learning how to be sustainable will help to create inquiring ethical minds in the future, and the knowledge acquired in these classes could influence their productivity not only during their enrollment at Chapman but also throughout their lives.

Another positive change at Chapman in the past 5 years was the hiring of an Energy Conservation and Sustainability Manager, as well as the addition of student sustainability interns. These hires will continue to benefit the university for as long as they remain a priority at Chapman. Not only do student sustainability interns gain professional work experience within the many projects and initiatives pertaining to sustainability at Chapman, but they will also be able to use these skill sets in future endeavors. The increase in availability of grants for individuals working on sustainability related projects helps to promote sustainability campus-wide so that projects such as the community garden provide an opportunity to inspire and educate students, faculty, and the community surrounding Chapman. Collaborative efforts have the potential to open doors to new sustainability projects and products from Chapman in the forms of publications, honors, and research. The culmination of sustainability knowledge and awareness at Chapman creates the possibility that

students or faculty will act on their knowledge and passions in the future, creating a healthy and just society as they extend their sphere of influence well beyond the university itself.

2.4.2 Areas in which to improve

In order for sustainability to be taught in courses throughout many disciplines, professors must understand the complicated interconnectedness that is inherent to sustainability. If more Chapman faculty were to become comfortable with this subject, there could be a larger number of discipline-specific courses taught throughout a variety of majors and programs. An increase in faculty awareness will not only benefit the students of Chapman but the entire institution in ways that include cost savings, environmental preservation, working conditions and social impacts that will make this institution a more favorable and rewarding experience for many prospective students as well as prospective faculty. Many schools in the United States, including some in California have adopted campus wide sustainability statements although many of them do not include sustainability in the curriculum of the institution. The University of California system has adopted a sustainability policy that includes green building construction, clean energy, climate protection practices, sustainable transportation and building operations, recycling and waste management, environmentally preferable purchasing practices, and sustainable foodservices practices (UC Policy of Sustainable Practices, 2009). While this policy is very impressive, it is not clear how the school system teaches and promotes to students the importance of sustainability.

The small, friendly, and tight-knit community that has encouraged so many students to come to Chapman creates the perfect canvas for sustainability to take hold. The proper implementation of sustainable practices within the Chapman community could result in support and promotion from many student organizations. If sustainable practices were integrated among more student organizations, the principles of sustainability would become habit to many more people.

2.4.3 Existing gaps in knowledge

The average knowledge of faculty at Chapman pertaining to sustainability issues is currently unknown but likely variable. In taking steps towards adding sustainability to more areas of the curriculum, it is important for administrators to assess the current knowledge barriers that professors are facing. It is not possible for faculty members to teach a subject that is not well understood. While teaching the subject will help to increase the knowledge of sustainability, it is crucial that the Chapman faculty is given enough information related to their subject matter to better research the subject and tailor sustainable practice recommendations to their current subject matter.

2.5 Recommendations

2.5.1 Low cost/effort

- Create a database: The faculty sustainability committee should include all courses at Chapman that contain sustainability content, all faculty doing sustainability research at Chapman, and the levels of student sustainability awareness, activity, and performance.
- Incorporate sustainable practices into Chapman's academic environment: Switching printing preferences to automatic double-sided printing could change the way that being environmentally friendly is viewed by emerging professionals. Currently, there are many professors that will not accept double sided printing, and there are also some which do not print long packets of papers (such as exams) double-sided. This simple change will reduce paper use by half and make significant reductions in the impact of University by reducing waste as well as save money. Increasing awareness in one easy way, such as changed printing preferences, has the potential to cause some faculty to become personally engaged in

sustainability efforts, and to ask and learn about how many trees and how much money Chapman saved by converting. By building awareness among faculty, some professors may even be inclined to go paperless. Some simple 'paperless' switches include uploading syllabi to blackboard instead of printing them for every student, requiring that students submit assignments online (which can help minimize the number of late submissions as well as automatically check the work for plagiarism), or even completing exams online in one of the Chapman computer labs. These conversions from everyday practices can save reams of paper throughout a single semester. When this change is multiplied by many semesters, the savings are considerable.

- **Make sustainability a mission: This is a challenge** to those who are already interested in sustainability. To those who practice sustainable living by going to farmers markets, carpooling, or reducing water use and your carbon footprint – pass the knowledge along! By including sustainability or sustainable practices into course syllabi and discussions, it creates the possibility for professors to learn more about the subject as well as how others view the subject. The impact that an exceptional conversation between two engaged people can have is priceless.
- **Sign The Talloires Declaration:** The Talloires Declaration was created in 1990. It has been the first official statement made by university administrators of a commitment to environmental sustainability in higher education. The declaration has been signed by over 350 university presidents and chancellors in over 40 countries. By signing the Talloires Declaration, the university accepts the following statement:

“As an institution of higher education concerned about the state of the world environment and the advancement of sustainable development, we shall strive to promote actions that will achieve a sustainable future. We endorse the Talloires Declaration and agree to support environmental citizenship at all levels including senior managers, administrators, faculty, staff, and students. Together we shall endeavor to advance global environmental literacy and sustainable development by implementing the ten-point action plan of the Talloires Declaration.” (ULSF, 1990)

For a complete 10 Point Action Plan, visit <http://www.ulsf.org/pdf/TD.pdf>

2.5.2 Moderate cost/effort

- **Increase faculty awareness and support:** The biggest barrier faced in taking the first steps to incorporate sustainability into the curriculum lies with current knowledge of the subject. One way to overcome this barrier is for faculty to attend sustainability conferences, seminars, and workshops. If members of the faculty Sustainability Committee were provided with funding to attend the California Higher Education Sustainability Conference or the AASHE Annual Convention, those faculty members would then have the knowledge and tools to host a workshop for other Chapman faculty members.
- **Create new courses and programs:** As the knowledge of today's global issues increases, the number of professionals who choose to specialize in areas pertaining to sustainability has also increased. This creates a unique opportunity for the addition of courses taught by experts in their field, whether it be sustainable business and sustainable art. Some programs where sustainability related curricula could be added easily include philosophy, sociology, political science, business, biology, chemistry, environmental science, the Honors program, peace studies, law, and food science. More challenging programs include the art, music, theatre, writing, languages, mathematics, and athletic training. By beginning with the addition of courses to existing programs, the culmination of courses can lead to an entire interdisciplinary

program specific to sustainability. While still unique, the interest in sustainability as an independent program is growing as there are high school seniors actively selecting schools based on campus-wide sustainability efforts.

2.5.3 High cost/effort

- Create a university sustainability policy: The last stop on the journey toward becoming a sustainable campus is creating Chapman's official sustainability policy. This policy is an important step to ensure that progress goes towards sustainability and that sustainability efforts are not lost or abandoned over time. Chapman's Sustainability Policy should include the areas focused on by this audit:
 - Building construction
 - Water
 - Energy
 - Recycling and waste management
 - Curriculum
 - Dining services
 - Landscaping
 - Procurement
 - Transportation

Chapman's sustainability policy should provide each college with ways for sustainability to be incorporated into the curriculum specific to that discipline. In addition to these agendas, it is important for the policy to include measurable goals, both campus-wide and college-specific, that can be revisited later and used to evaluate the effectiveness of creating the policy.

Creating a campus-wide sustainability policy will help to incorporate sustainability as a priority at Chapman as well as give the university a basis for evaluating future efforts and changes.

2.5.4 Future areas of research

It is important to monitor changes throughout the next few years in order to be able to enumerate the impact of the improvements on campus. These data can provide encouragement (awards for exceptional faculty and students) and to prevent the loss of momentum among faculty. This means keeping track of what has changed and what goals have yet to be met. It also means keeping track of costs (both monetary and time) associated with attending sustainability events, the hiring of more sustainability staff, and the addition of courses/majors.

2.6 Contacts

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