BEHAVIOR CHANGE: ON-CAMPUS

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4.1. Introduction

Inducing behavior change over a large body of people has been proven to be a difficult task. Individuals form habits and routines, and are typically very opposed to breaking them. In a university style setting where people are constantly coming and going, it can be even more of a challenge to implement large scale adjustments. This chapter assesses past and ongoing behavior change programs that focus on sustainability and that have made a difference at other universities across the world. These programs will then be evaluated on their potential to be introduced on campus and the positive effects they could have on Chapman's sustainability efforts.

Alongside this, sustainability initiatives that are already in progress will be examined to determine their effectiveness in promoting an ecofriendly campus. The data collected during the Chapman University 2015 Energy and Building Construction Survey will also be analyzed to give up to date information on students, staff, and faculty's interest in implementing more courses related to sustainability. The goals of this project are to observe potential techniques that initiate behavior change on campus and how they will have a lasting effect on Chapman's future.

4.2. History at Chapman

Environmentally conscious products like Big Belly Solar recycling and trash bins have been placed around campus (in 2012) to both cut costs and raise awareness. EZH2O Bottle Filling Stations by Elkay have replaced most traditional water fountains to encourage the use of reusable water bottles. In addition to this, a "Pledge Against Plastic" has been implemented on Chapman's website where students, staff, and faculty can make a vow to themselves and their community to stop using plastic water bottles and in turn save themselves roughly $375 a semester (Pledge, 2014). These products and sustainability measures raise awareness to students, staff, and faculty that may otherwise never have known.

The Green Initiative Fund is a current program that gives money to chosen applicants to support a sustainability initiative. These types of initiatives could include an awareness campaign, recycling drive, sustainable practices training and more. Another work in progress is the Green Department Certification Program, which audits individual departments by their waste and faculty offices. The three audits that are currently underway have given insight into what most offices look like, and potential changes that could help facilitate waste management and reduce energy bills. Staff and faculty surveys are also

distributed and ask participants to evaluate how they utilize their office space, giving them a little push to become more aware of their energy usage.

4.3. Current Status

4.3.1 Green Department Certification Program

The Green Department Certification Program (GDC) started in 2012 and completed 9 department audits. In 2014, the program was re-vamped and now has three department audits underway. The first step of the certification process involves contacting the intended department and then informing all of the faculty and staff of the programs intentions. This is then followed by an office and waste audit to get an understanding of energy usage, recycling habits, electronics used, and the overall sustainability-related atmosphere. These findings are then presented back to the participants along with recommendations on how to make their office space more environmentally friendly. A second office audit is performed a few weeks later to assess the changes made, and then an award is given based on the department's progress.

From presenting during staff and faculty meetings, walking around office spaces, and reviewing survey data, it is obvious that each department has its own sustainable practices, concerns, and downfalls. Instead of trying to tackle the university as a whole, it makes more sense to individually pinpoint the problems and make alterations from there. It is easy to conclude that a program like the GDC is vital to helping reduce energy costs and implement behavior change. Table 4.1. shows different observations and concerns collected from the current departments undergoing the certification process.

Table 4.1. *Qualitative and quantitative data collected from each department while conducting the GDC audit along with recommendations made.*

	Department		
	Math	Sociology	Education
Positives	All electronics are kept in energy saving mode	Only 2% of recycling should have been trash	Multiple plants and sustainability related posters
Negatives	Excessive e-waste	Almost 50% of trash could have been recycled	Excessive space heaters and lamps
Department Concerns	Unsure of what they are supposed to do with their old electronics	Can't double-side print because printers always get jammed	Rooms and office spaces are too cold
GDC recommendations	Send a work order to Aramark to collect unwanted technology	Label trash and recycling bins with items that can go in each one	Put in a request to facilities management to turn the A/C down

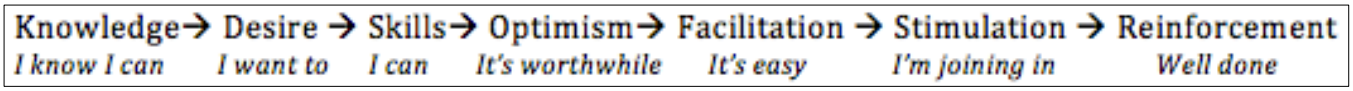

Figure 4.1. *Robinsons Model of Behavior Change, 1996.*

The behavior change process can be viewed through the Robinsons Model of Behavior Change created as a result of a project called Social Change Media in Australia in 1996 (Figure 4.1).

The first step, knowledge, is one that most people already have. Today, most people *know* about energy reduction, sustainability, climate change, etc., but they do not have enough information to act on it. The second step is desire, which for some people just comes naturally, others through education, and others through incentives. Based on the primary data collected through the GDC, the math department is stuck somewhere in this section. They lack the desire to make these changes, so maybe an incentive tool might be the best approach to get them involved and pushed along to the next step, which is Skills. Equipping participants with the necessary tools to reduce their energy usage is one of the most effective parts of the GDC. The Education department lies somewhere in this category because they have to desire to make a change and will soon have the appropriate skills as well.

Collecting data about each department and showing how doing the little things can make a huge difference will also help achieve another step- optimism. Seeing the bigger picture might be the key to helping participants feel like they are making a difference. The Sociology department has definitely reached this step- eager to make changes after receiving potential improvement suggestions. The next step is facilitation, which should easily be achieved considering all of the energy reducing tools are are simple and effortless. Stimulation will hopefully be produced from a community effort, and then the final step of Reinforcement will be attained once each department receives their certification award.

Data collected from the 2015 Environmental Audit Survey could also be put toward future presentations given by the GDC. In the staff and faculty survey, 55% of respondents indicated that they spend majority of time in their office between the hours of 10 and 2, and about 25% who said between the hours of 2 and 6. This data indicates that most staff and faculty are in their office during daylight hours, however over 60% of responders indicated that they never or rarely use natural sunlight instead of electric lighting. Figure 4.2. below shows the amount of time electric lighting is in use while staff and faculty are in their offices.

With the exception of those offices that do not have access to windows or cannot control their own lighting systems, overhead and additional lamp or floor lighting should rarely be used if almost all staff and faculty are in their offices during the daytime.

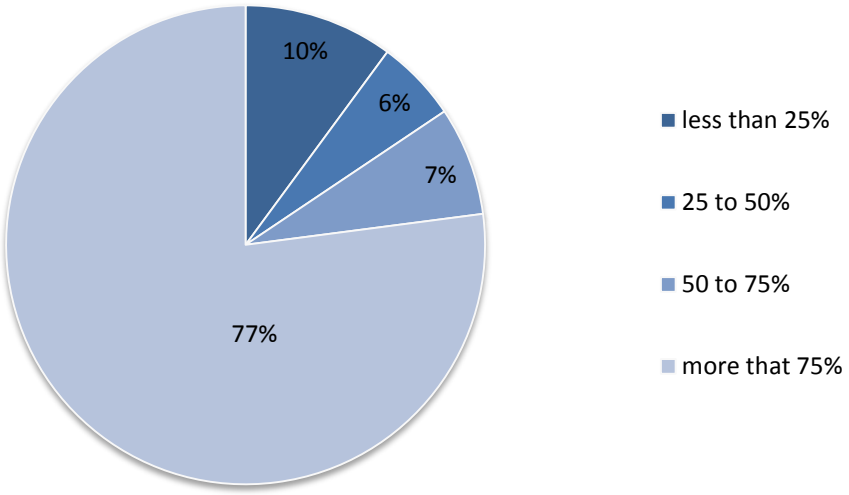

Figure 4.2. *Amount of time the lights are turned on when staff and faculty are in their offices*

The survey can also be used by the GDC to target departments and buildings where respondents found themselves constantly too cold in their offices. Educating them on how to contact facilities and request for a warmer workspace would not only benefit them but also reduce energy bills. Figure 4.3. below displays this information below.

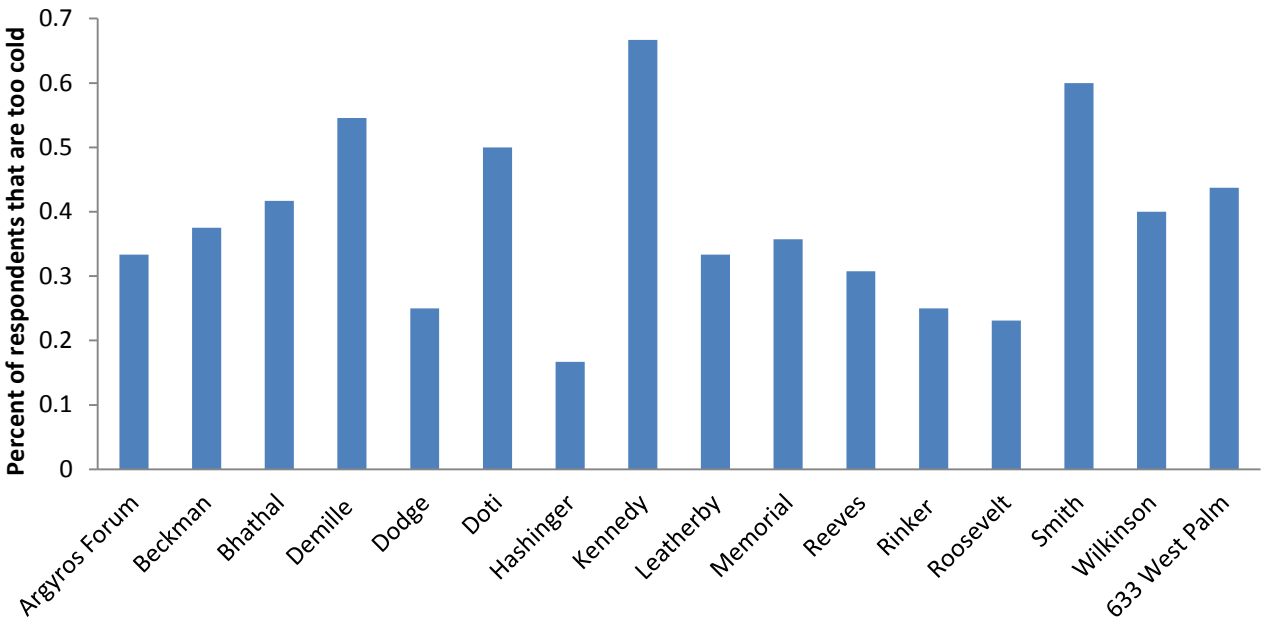

Figure 4.3. *Percent of total respondents by building that responded to the question, "I find myself too cold in my office" with either "often" or "very often".*

The GDC has also given insight into one common problem across campus, and that is that many people lack the understanding about how to make sustainable changes and how easy it can be. Primary data indicated that many faculty and staff were unaware of how to get a recycling bin in their office, receive credit for using public transport, or have their air conditioning turned down. Along with this, the 2015 Environmental Audit survey found that 55% of staff and faculty would be interested in sustainability training if it were offered. The University of California Berkeley has a similar program that educates staff on transportation options, sustainability funding available, and energy, waste and water reduction techniques (Staff, 2014). This sort of program could be offered at the beginning of every year or even semester- optional, quick, and free for all of Chapman's staff and faculty. It would also be beneficial to have this sort of program be mandatory for all new Chapman employees and students.

In addition, it could also be advantageous to require a similar training for all those who make purchasing choices. The 2015 Chapman Environmental Audit Survey found that 53%, 57%, and 61% of all staff and faculty that make purchasing decisions around campus either strongly or somewhat agreed to purchasing all furniture, office supplies, and cleaning supplies from a verified sustainable provider, respectively. The 2013 Chapman Environmental Audit Survey also found 70% of all staff and faculty that made purchasing decisions were aware of the environmentally conscious products, but majority were unaware if they even purchased these items (Campus- Procurement, 2013).

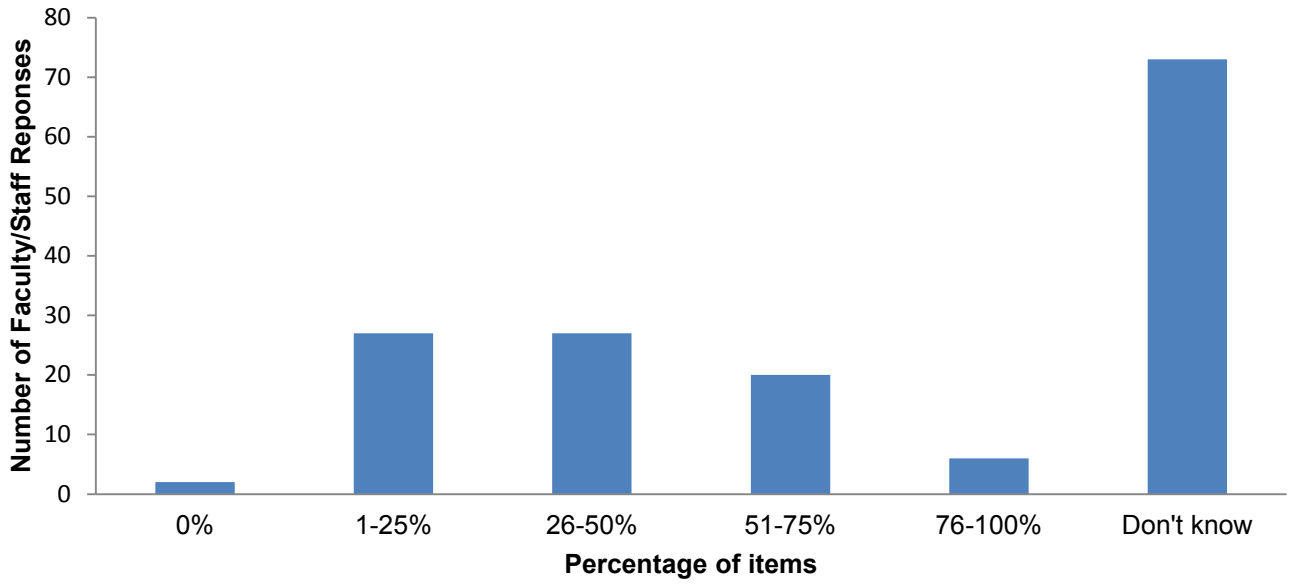

Figure 4.4 *Percentage of the products purchased through Office Solutions that are designated as environmentally conscious (Campus- Procurement, 2013).*

When asked the open-ended question on the 2015 staff and faculty survey “How do you get most of your university news”, almost every respondent said by email. Others also said that in addition to this they get their campus updates through weekly newsletters and sources like The Panther. A few other respondents also said by word of mouth. When trying to advertise a staff and faculty sustainability training or any other sustainability initiatives, these sources of media would be the best way to target this population.

4.3.2 Curriculum

According to several studies, the top sustainable universities across the world not only implement conservation practices around campus, but in the classroom too. The University of Connecticut for example has hundreds of classes related to environmentalism and even has a workgroup that develops new courses and helps students to find professions in green careers (Andrews, 2014).

The 2013 Chapman Environmental Audit stated that there were around 39 classes that contained the course description with the word “environm” and only 9 with the term “sustainab”. However the audit also stated that about 65% of faculty and staff found sustainability to be an important topic in higher education (Campus- Curriculum, 2013). In addition, the survey data collected in the 2015 Environmental Audit Survey indicated that almost 60% of student responders would be interested in taking a class related to sustainability and/or environmental issues. Figure 4.5. shown below breaks down the amount of interested respondents by department.

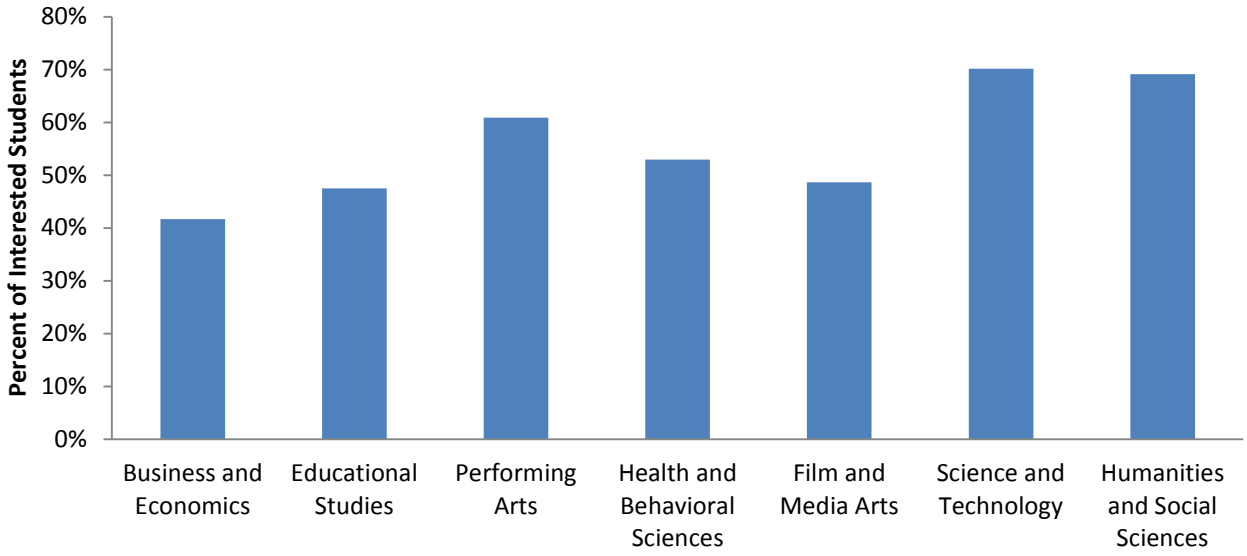

Figure 4.5. *Percent of total respondents from each department that answered the question, “I would be interested in taking a class related to sustainability and/or environmental issues” with the answer ‘somewhat agree’ or ‘strongly agree’.!*

Not surprisingly, Schmid College of Science and Technology had the highest percentage of respondents interested in sustainability related classes. Not far behind though is the Wilkinson College of Humanities and Social Sciences, where 69% of responders from that department were interested. The College of the Performing arts and the Crean Health and Behavioral Sciences also showed that more that 50% of students would be willing to take a class related to this field. Even the Argyros School of Business and Economics, that displays the least amount of willing participants still has a 40% interest rate.

Whether it is teaching young entrepreneurs how to create a sustainable business or offering a documentary class focused on capturing prevalent environmental issues, sustainability can be incorporated into any field. Increasing the number of sustainability related courses across the university is a key step in spreading environmental awareness. Recently, the basic level environmental science classes (ENV101: Environmental Science and ENV102: Environmental Policy) were retracted from Chapman's general education natural science inquiry list. While these cuts were made in effort to help related major and minor students secure spots in the courses, they are in fact hurting other student's opportunities to learn about the topic. Instead of making the classes so exclusive, Chapman should offer more sections of the course or move the class to a larger lecture hall. Along with this, student workers can be hired as teacher's assistants to help the associated professors with the increased workload.

In addition to offering more environmentally focused courses, requiring students to take additional science classes could lead to increased knowledge and use of sustainable practices. A 1999 study done on American high school seniors found a significant correlation between the number of science classes (that included a lab) a student had taken and the student's level of knowledge about environmental issues. Only 22% of those students who had taken one science class scored satisfactory on a brief 7 questions survey in comparison to 64% of those who had taken 4 or more science classes (Gambro, 1999).

Chapman currently requires that every student must take 3-4 credits within the natural science field. This means that some students can get away with only taking only 1 non-lab based science course. Many top universities including Harvard and USC require that students take a minimum of two courses in the science field. UCLA on the other hand requires that students take at least *four* classes- two related to life science and another two related to physical science. At least one course in each of those subdivisions must also have a lab section (UCLA, 2013). While it may seem unnecessary for a liberal arts university to increase the number of required science classes, it is actually quite the opposite. If it is truly Chapman's mission to educate ethical and informed global citizens then it is of the upmost importance for students to be academically well rounded and be pushed to higher standards.

4.3.3 Additional Ideas

While every individual effort is important, behavior change throughout Chapman has to come as a whole. The students who worked on the 2014 Chapman Environmental Audit: Water and Landscaping noted that a big push-back with implementing native plants were their 'lack of beauty'. And indeed, Chapman prides itself on being an aesthetically pleasing campus, and is arguably one of the reasons many students chose to attend this university in the first place. Instead of pushing back and forth between Chapman's historic background and sustainability, they need to be integrated to become apart of one another. It could be as simple as a Chapman brochure with a picture of students sitting in front of a native garden, or the university website headlined with current sustainability measures around campus. To become a leader in conservation initiatives, which is more relevant and groundbreaking today than ever before, Chapman has to make sustainability apart of its everyday culture.

Another simple idea that could be integrated into Chapman's weekly lifestyle is a 'Casual Friday' where staff and faculty can dress in clothes more appropriate for warmer temperatures. During this day the university temperatures could be set to only a slight one or two degree higher to reduce the overall energy bill. According to the 2015 Environmental Audit Survey, over 80% of staff and faculty liked the idea (Figure 4.6).

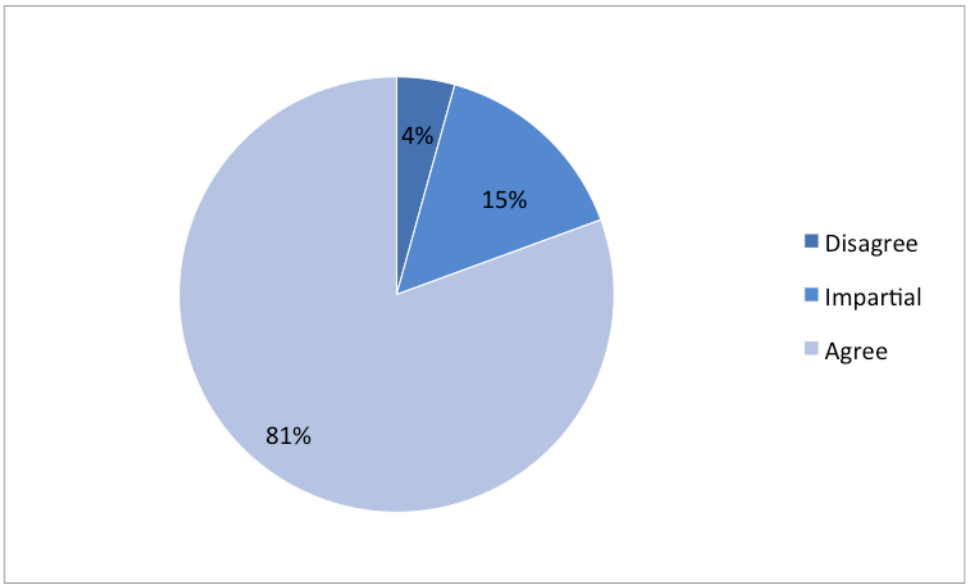

Figure 4.6. *Percent of staff and faculty that responded to the question "Would you be interested in a casual Friday where faculty/staff could wear more comfortable and laid-back clothes fitted for warmer classrooms?"*

4.4 Concluding Assessments

The overall campus sustainability culture has progressed throughout the past few years. There have been obvious efforts around campus to make a change including the implementation of Big Belly Solar bins and the water refill stations. Additional developments include the Green Initiative Fund and the ongoing efforts of behavior change programs such at the GDC.

However there will always be areas on which to improve. It would be beneficial for Chapman to implement staff and faculty sustainable education programs. Aside from learning eco-friendly practices in the workspace, this would also help break the communication barrier and form a better understanding of university services like facilities management. Additionally, Chapman could look into the increase of sustainability, conservation, and environmental science related courses offered to the student body throughout all different departments.

Ideas for future research, which did not fit the scope of this audit, but would be of interest in future audits, include:

- Potential sustainability related courses students would be interested in.
- Incremental data on how turning off specific electronics for a certain amount of time can save Chapman x amount of both energy and money.
- More details on who controls purchasing for each department and how they make their decisions.
- Feedback surveys on the Green Department Certification Program and how to improve it.
- Numeric data on how staff and faculty education programs save energy costs.

i.e. Implement staff sustainability training in half the departments and compare energy reductions to those departments left untrained.

4.5 Recommendations

Low cost/effort:

- Integrate the sustainable culture into Chapman. This could include featuring a native garden on the cover of a university brochure, or headlining the Chapman website with current sustainability initiatives
- Implement a “casual Friday” across campus where staff and faculty can wear clothes suited to warmer temperatures. On these days, increase office and classroom temperatures by a slight one or two degrees

Moderate cost/effort:

- Increases funding for sustainability programs like the GDC. Hiring more interns with pay would help motivate individuals to complete work faster and audit more buildings over the course of the semester. The end results would be more educated staff and faculty
- Implement mandatory training programs at the beginning of each year or semester for new staff and faculty, along with those individuals who make purchasing decisions.

At no additional costs these programs can be opened up to all interested staff and faculty for free

High cost/effort:

- Add additional classes related to sustainability and environmental issues in varying departments across campus.
- Add more sections of the basic environmental science courses so more people can take them rather than restricting them to students enrolled in the ES&P major and minor.

A low cost solution could also be to move the already existing sections into bigger lecture halls so that more students can fit. Additional costs would be at most hiring a teachers assistant to help grade papers and exams.

- Require every student to take more science-based credits including a mandatory lab session.
- Encourage the purchase of more sustainable furniture, office, and cleaning supplies
- Continue to promote a sustainable culture by conducting ongoing assessments of alternative energy such as solar panels on campus. Being able to physically see sustainable changes will encourage more members of the Chapman community to join the movement

4.6 Contacts

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