

Executive Summary

The Chapman University 2017 Transportation and Curriculum Audit was conducted in spring semester of 2017. This audit focused on collecting and assessing data from various campus departments, Chapman students, faculty, and staff, and outside sources to provide insight into ways the University can reduce its environmental impact and better educate its students on sustainability issues. The authors of the audit provided background historical information, conducted assessments of current practices, identified opportunities for improvement, and made focused recommendations on the specific topics that were examined. The following are summaries of the eighteen chapters included in this report.

Transportation

Chapter 1: Targeting Chapman's Alternative Transportation Improvements

Sara Wanous

Chapman University is a commuter campus, however little to no effort is put into understanding student commuting patterns. Developing knowledge of student distribution off campus paired with student preference and concern data will allow the university to make informed recommendations for the most successful alternative transportation programs.

Recommendations include:

- ❖ Decrease driving incentive by moving to an opt-in parking permit structure and increasing the parking permit cost
- ❖ Increasing sustainable transport incentive by increasing Panther Shuttle routes and developing a guide to public transportation

Chapter 2: Biking at Chapman

Sean W. Augustine

Biking, a form of active and sustainable transportation, makes up only a small portion of commuters to Chapman, and should be better promoted to increase the university's sustainability efforts, as well as to reduce stress caused by parking. The main goal of this study is to analyze the state of biking among all members of the Chapman community, and to develop suggestions for improving the presence of biking among commuters to campus. Recommendations include:

- ❖ Increase advertisement of sustainable transportation initiatives, as well as personal benefits of biking.
- ❖ Create package deal of transportation vouchers, such as bus passes and day parking permits, for those who choose to bike to campus.
- ❖ Implement a bike rental program that can be used by students, faculty, and staff for free or moderate price.

Chapter 3: Active and Public Transportation

Derek T. Itagaki

This chapter focuses on active and public transportation at Chapman University and how these alternative forms of transportation compare to the primary form of transportation to campus, personal vehicle commute. Active and public transportation have been viewed as more environmentally friendly, but these transportation methods pose more benefits to individuals compared to personal vehicle transport. The measures that this chapter examined were carbon emissions, monetary costs and savings, and calories burned. The results of the audit showcase the potential for positive changes for the environment and Chapman's population if active and public transportation were encouraged and more convenient.

Recommendations include:

- ❖ Advertise current transportation initiatives better and educate Chapman's population of benefits of active and public transportation
- ❖ Improve reimbursement process of current transportation initiatives
- ❖ Create a bike rental program for Chapman's population.

Chapter 4: Ridesharing

Allison N. Scavo

Due to its commuter culture, Chapman University is plagued with single rider vehicles and serious parking issues. Ridesharing acts as a powerful strategy to resolve these problems as it reduces the number of vehicles needed by travelling Panthers, thus decreasing traffic congestion and parking demand. Chapman currently offers a handful of ridesharing programs and incentives, including subsidized public transport passes, campus Zipcars, and carpool permits, but these programs are not well used nor well known on campus. Fortunately, the University can improve many aspects of ridesharing for its faculty, staff, and students.

Recommendations include:

- ❖ Offering new ridesharing incentives used at the Chapman aspirational or peer institutions
- ❖ Forming a partnership between the University and a private ridesharing service, such as Uber

Chapter 5: Transportation Technology and Efficiency

Lotus H. Thai

As Chapman University's student population continues to grow, parking will become more impacted each year. In addition, student satisfaction surveys illustrate that students are unhappy with the current parking situation. To increase satisfaction, this chapter looks at improving parking efficiency through technological advancements.

Recommendations include:

- ❖ Upgrading the CU parking app
- ❖ Installation of a parking guidance system
- ❖

Chapter 6: Cost Analysis of Parking Infrastructure at Chapman

Cymbre D. Hoffman

Parking has become a stressful task at Chapman University, and many feel that there isn't enough parking, or that it takes too long. This chapter of the 2017 Environmental Audit looks at parking infrastructure and the costs associated with building it, maintaining it, and what are the pros and cons of having a below ground or above ground parking structure. In addition, it also assesses sustainable transportation alternatives that can reduce car congestion, and decrease Chapman's carbon footprint.

Recommendations include:

- ❖ A bundle package that includes a bike voucher, a Zipcar card, a universal public transportation pass, a few tickets to the parking structure on those occasional rainy days, and more.
- ❖ A bikeshare program with the City of Orange

Chapter 7: Moving Forward: Assessing University Growth and Transit Planning Options

Danielle S. Platt

This project studies Chapman's historic growth and makes recommendations for various programs that Chapman might be able to implement to encourage use of alternative transit options among Chapman students and staff. Recommendations include:

- ❖ Develop an advertising campaign to improve Chapman student awareness of various transit options on and around campus
- ❖ Implement a myriad of ridesharing options around campus
- ❖ Develop a public transit program through an agreement with OCTA.

Curriculum

Chapter 8: Interdisciplinary Courses Across the University

Kiyoko A. Nakatsui

A liberal arts education emphasizes an interdisciplinary philosophy of learning. President Emeritus of Cornell University Frank Rhodes said, "the concept of sustainability could provide a new foundation for the liberal arts and sciences" and that it is "the ultimate liberal art." However, Chapman does not require students to learn about sustainability or environmental topics during their time as a student. These topics impact all facets of academic study from the hard sciences to social sciences. This chapter provides recommendations as to how Chapman can integrate these topics into their curriculum.

Recommendations include:

- ❖ List all courses with these topics into a thematic General Education course list
- ❖ Include these topics as requirements under the Global Citizens requirement as a sustainability and environmental literacy requirement

Chapter 9: Environmental Science and Policy Curriculum

Kyvan R. Elep

The Environmental Science and Policy major and Environmental Science minor were created in 2009 followed by the Environmental Studies minor in 2011. Since its creation, there has not been a notable change to the major's curriculum. In recent years, the environmental movement has gained momentum, and areas like environmental justice, policies, and natural disasters have developed – some of which are not reflected in the current curriculum of Environmental Science & Policy. The goal of this research is to highlight areas of the major that need improvements as well as areas where the major is succeeding. Data were also collected from alumni of the major to help guide recommendations to improve the major.

Recommendations include:

- ❖ Create alumni database of jobs and education after obtaining their undergraduate degree in Environmental Science & Policy.
- ❖ Outreach to aspirational schools to learn about how they made their programs strong, as well as ask for comments on the ES&P program at Chapman.
- ❖ Create pathways and roadmaps for intended careers.
- ❖ Increase full-time faculty of the ES&P program.
- ❖ Expand the ES&P program by dividing the majors into Environmental Science, Environmental Studies, and Environmental Policy, or some other kind of variations.

Chapter 10: Science Colleges Looking Ahead: Interdisciplinary and Sustainability Curriculum in the Schmid College of Science and Technology

Elizabeth W. Flowers

The student enrollment in Schmid College of Science and Technology continues to increase and in 2018 will be moving into a new 40,000 square foot science building. This architectural wonder is on a 2.2 acre site, costing over \$130 million and is specially equipped for each department's needs. With the opening of this building only a year away, Schmid College must update its curriculum. Interdisciplinary courses prepare students to be innovative problem solvers using approaches from multiple disciplines, and sustainability courses (which are, by nature, interdisciplinary) prepare students for a work force that increasingly must make environmental considerations. This chapter focuses on exploring the benefits of interdisciplinary curriculum, studies Schmid's curriculum changes over the past 10 years, and makes recommendations to prepare Schmid's curriculum so that it can grow into its new facility with ease.

Recommendations include:

- ❖ Increase enrollment in all Schmid courses (including interdisciplinary and sustainability courses) by increasing searchability by keyword and advertising courses
- ❖ Increase Schmid faculty or student assistants to give current professors time to adjust Schmid's curriculum and address low enrollment in elective courses
- ❖ Formal definitions of 'sustainability' and 'environmental science' in the course catalog
- ❖ Formal definitions and requirements for the 'global citizen cluster', 'ethics inquiry', and 'natural science inquiry' that would help students tailor their courses to their interests, increase flexibility in these three graduation requirements, and help increase enrollment

Chapter 11: Comparing Sustainability Curriculum in the Schmid College of Science and Technology and Argyros School of Business and Economics

Lauren H. Sato

Historically, decisions were often made in which environmental responsibility and business were considered mutually exclusive. Yet in the recent decade, there has been increased emphasis placed on the intersection of these two fields. As a result, corporations will seek employees that are educated in the interdisciplinary subject of environmental sustainability. To better prepare students for the workforce, higher education institutions, such as Chapman University, should advance sustainability in its curriculum. This chapter analyzes the prevalence of sustainability content in Chapman's Schmid College of Science and Technology and Argyros School of Business and Economics to determine areas in which these programs, as well as the entire Chapman curriculum, can improve.

Recommendations include:

- ❖ Better advertisement of interdisciplinary courses and projects, such as Corporate Sustainability Management and the Grand Challenges Initiative
- ❖ Educate trustees and all other Chapman stakeholders on the importance and benefits of sustainability

Chapter 12: Sustainability Curriculum in the Argyros School of Business & Economics

Hannah J. Francis

Sustainability is a subject that can successfully merge environmental and earth sciences with business and economics. Increasingly, businesses in every industry are incorporating sustainability into their goals for the future. For-profit business is extremely influential in society and therefore can make large scale positive impacts on the environment. However, sustainability initiatives can also provide companies with a competitive advantage. This chapter evaluates the curriculum within the Argyros School of Business Economics at Chapman University to make recommendations on how to effectively incorporate sustainability topics.

Recommendations include:

- ❖ Add the experimental course, Corporate Sustainability Management, as a permanent course offered for Business Administration students
- ❖ Include sustainability into the Program Learning Outcomes for departments within the Argyros School
- ❖ Create a Sustainability Management Minor/ Emphasis for interested students

Chapter 13: Integration of Sustainability and Crean College of Health and Behavioral Sciences

Maria J. Hurtado

Today, Behavioral Sciences is being used by national leaders to create policies that focus on sustainable development and consumption. Therefore, this chapter analyzes the current status of sustainability courses that are offered at Crean College. It also looks at the interest of students and staff in incorporating sustainability into the college.

Recommendations include:

- ❖ Create a spreadsheet of sustainable courses offered available to students so they can determine if it counts for their major
- ❖ Create experimental course that involve sustainability
- ❖ Offer sustainability workshops for faculty to increase their knowledge about the subject

Chapter 14: Environmental Health Curriculum

Tessa L. Oliaro

There is a very important intersection between the environment, public health, and socioeconomic factors (Braveman, 2014). These factors include waste disposal, water use and quality, road safety, ecosystem services, and many more. In order to develop sustainable institutions, the use of multiple disciplines is required including biology, ecology, peace studies, and social nonviolence. The overarching umbrella of environmental health can have emphases in environmental epidemiology, exposure science, climate change, ergonomics, home and industrial hygiene, and molecular epidemiology. Exploring each of these branches will prove that sustainable curriculum within an interdisciplinary environmental health approach, is essential for educational institutions.

Recommendations include:

- ❖ Educate faculty about what environmental health is and how it can be interdisciplinary
- ❖ Implement Public/Environmental Health minor
- ❖ New classes: Disease & Democracy; Developing personalized, long-term models of teaching & Eco-leadership teaching

Chapter 15: Chapman Sustainability Curriculum and Online Course Search Tools

Leah P. Thomas

This chapter focuses on increases the sustainability courses at chapman by improving online course search tools. Chapman transitioned from WebAdvisor to People Soft in the fall of 2015. While there were many benefits of my.chapman.edu, during this study both student and faculty noted navigational challenges with the new system. Improving the search tools on my.chapman.edu would ultimately bring awareness to new interdisciplinary classes.

Recommendations include:

- ❖ Adding an interdisciplinary Sustainability Course Catalog
- ❖ Adding a Sustainability learning Objective
- ❖ Adding tags to search descriptions that will yield search results on my.chapman.edu search engine

Chapter 16: Integrating Sustainability Across Curriculum Workshops for Faculty

Nicolette E. Burtis

Sustainability is an interdisciplinary topic that is connected to all aspects of life. This portion of the audit looked at developing workshops for faculty to aid them in incorporating sustainability across all disciplines. By looking at programs from other schools, the current workshops that

Chapman has, and survey data, a sample lesson plan for an "Integrating Sustainability Across Curriculum Workshop" was developed. Recommendations include:

- ❖ Integrating Sustainability Across Curriculum workshops once a semester for faculty
- ❖ Renew STARS (Sustainability Tracking, Assessment & Rating System) through AASHE (Association for the Advancement of Sustainability in Higher Education)
- ❖ Create a “Critical Thinking within Sustainability” GE requirement

Chapter 17: Public Awareness and Education

Tamilyn J. Chipeco

Sustainability issues are best learned when education experiences are taken outside the classroom and into the real world. Therefore, Chapman should invest more intentionally in public awareness initiatives across the campus and residence facilities. This chapter sought to evaluate and improve the current status of these efforts using the resources Chapman already makes available to its community members.

Recommendations include:

- ❖ Implement series of sustainability messaging through effective digital and physical signage
- ❖ Invest more heavily into interactive and visual demonstrations that promote sustainable behavior and environmental awareness

Chapter 18: Campus Earth Day Programming

Haley J. Miller

Earth Week is an opportunity for students, staff, faculty, and community members to learn about environmental issues and come together to make strides towards sustainability. This chapter aims at comparing Earth Week events on Chapman’s campus to larger-scale Earth Week programming at other peer and aspirational universities. In addition, it provides analysis of past student, staff, and faculty interest in programming, as well as attendance data from previous years Earth Week events.

Recommendations include:

- ❖ Add incentives like food and extra credit
- ❖ Creation of “Sustainable Orange”, an interdisciplinary coalition with representatives from diverse areas of the Chapman and City of Orange community

*Dedicated
to Chapman University*