

Report to the Provost

University of Redlands Sustainability Council

2016 – 2017

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OVERVIEW

The academic community needs to educate both by curricular design and by institutional example. Without integrating sustainability into our university's practices and processes, it is doubtful that we can fulfill our mission of freeing students to make enlightened choices, embrace a reflective understanding of our world, develop responsible citizenship, engage in lifelong learning, and by implication contribute to the creation of sustainable communities.

Sustainability is not just about the wise management of energy, water, waste, and pollution; it is about a holistic way of thinking—a way of seeing the world stereoscopically through multiple integrated lenses of ecological integrity, social equity, and economic vitality. It is fundamentally about our society's bequest of social and environmental wealth for future generations. As such, it is a powerful force for integration, weaving together science, ethics, policy, management, history, and many other fields in the pursuit of knowledge that *sustains* living systems.

Education for sustainability requires conceptual "carpentry"—building frameworks for understanding socioeconomic and ecological interdependence. Building on the notion of a bequest, it requires both disciplinary and interdisciplinary knowledge about what we leave future generations in the way of healthy ecosystems, socially just institutions, strong economies, great art, vibrant cities and towns, and challenges worthy of a highly educated society. It represents our collective bequest to tomorrow's children, as well as our moral obligation to secure life in the present—both human and nonhuman—by striving for a world that is green, prosperous, fair, and inspirational. As such, it requires "braided" learning about environmental quality, economic vitality, social equity (the 3 "E"s) *and* the things that inspire us to achieve them.

In a more practical way, campus sustainability advances these ideals through the design of high performance buildings, interdisciplinary curricula, and socially responsible investment and incentive structures that alter university practices and behaviors associated with unsustainable growth, supply chain purchasing, institutional consumption, and waste production. A truly effective campus sustainability program models these practices and behaviors in ways that encourage students, faculty and staff to reduce personal consumption and waste production.

Institutional Benefits

The value of a campus sustainability program consists of both educational and financial benefits—some of them immediate and concrete, others intangible. Foremost among the intangible values are the opportunities to demonstrate leadership and social responsibility to our students and to the wider community. Also important in this regard is the grateful support of many alumni, students and faculty, the advantages for curriculum relevance and educational

value, the public relations benefits, and the sense of progress in moving forward at a time of wrenching dislocations in many financial, political and ecological systems.

Financial benefits include potential savings in energy, water, and other resources, hedges against the price volatility of conventional fuels and water supplies, and the possible prospects of significant income from donor groups concerned about the gap between traditional education and problem-solving in an age of global warming, social distancing, and consumer disenchantment.

Beyond the direct benefits to the University are the vital and ultimately more important services such programs promise for society, at large. A sustainability emphasis at Redlands will help us to prepare society's leaders and professionals, while perhaps instilling an important new direction in both our undergraduate teaching and in our professional programs in business and education. The indirect influence on K-12 education may be especially important as a reason for adopting sustainability concepts at the university level for use in teaching future teachers.

Any campus that is dedicated to relevant education and bold experimentation will want to consider sustainability as a core organizing principle and unifying philosophy (e.g., "Creating Sustainable Communities") for aligning their mission with the learning priorities of the twenty-first century. Hence the ultimate benefit of a strong campus sustainability program is the purpose and meaning it adds to a university education.

The institutionalization of sustainability that is needed involves the university's dual role in educating future leaders and developing a physical environment that can "showcase" innovation in sustainability thought and practice. With annual expenditures in the U.S. of roughly \$300 billion, higher education can clearly help in achieving a more sustainable society by simply setting an example in facilities design and operations. The combined expenditures of American institutions of higher education exceed the GDP of all but 25 nations. The extent to which that spending can transform the look of a campus by adding green buildings and other infrastructure that can "teach" is very important. Visible sustainability projects and buildings are one medium for acting sustainably. This influence on the physical infrastructure of a campus is the influence on what is taught and how it is taught. Curriculum reform is vital. Because re-conceptualizing our lifestyles and cultural identities to become sustainable begins with education, the potential influence of colleges and universities in moving toward sustainability is likely to be greater than that of other institutions—business, government, religious, or cultural.

The Need for Action

Worrying trends in social distancing, religious and political polarization, autonomous technology, the concentration of wealth, treatment of women and minorities, and many other

aspects of injustice and unsustainable economic growth have combined to make a compelling and urgent case for educating future leaders about sustainability issues. Moreover, rapidly mounting scientific evidence confirms that major environmental and climate systems are being disrupted by unsustainable human production and consumption systems, at rates and magnitudes that are unprecedented in human history. The Millennium Ecosystem Assessment, a 5-year study of global ecological health, conducted by 1,400 leading scientists from 95 countries, warned that 12 of 13 major ecosystems are showing increasing degradation and decreasing ecological resilience, thereby threatening future quality of human and non-human life in many regions of the world. In 2014, scientists revealed that fully half of global wildlife populations had been lost in the previous four decades due to human activities². Part of this decline is attributed to increasing average surface temperatures, with 16 of the 17 warmest years in Earth's instrumental record occurring since 2000³.

The challenges we face in the 21st century are profoundly tied to issues of intergenerational health, social welfare, ecological wealth, and capitalist ethics—the central intellectual concerns of sustainability, and arguably key concerns of higher education. Education in the twenty-first century must embrace interdisciplinarity to fully address the interaction of social, economic, and environmental systems that collectively produce healthy biotic and social living. Furthermore, it must celebrate the value of the arts and humanities in creating the music, literature and art that inspire healthy living, as part of human civilization. These are some of the challenges that the Sustainability Council hopes to examine in more practical terms in the coming years.

Sustainability is about securing quality of life for communities, indefinitely, within the fluctuating limits of Nature, relying on human creativity, justice, and wise investment. But achieving these goals will require our university and many others to alter some of their operations, teaching and research. More importantly, it will require that they reconsider their purpose in society, perhaps by de-emphasizing their role in the economy and by moving beyond the disciplinary structure and dominance it fosters in higher learning.

² World Wildlife Fund, *Living Planet Report*, 10th edition.

³ NASA and NOAA, "GISS Surface Temperature Analysis," January 17, 2017.

To date, universities' support for sustainable development has primarily focused on campus design and operations. Less attention has been given to solutions-oriented research, related policy challenges, or practice-focused education of students. More than ever, holistic and cross-disciplinary initiatives are needed to link academic and operational excellence into a truly sustainable learning environment and experience.

Solutions-oriented sustainability research will require more inter- and transdisciplinary approaches. This presents a challenge to today's academic system, which does not tend to favor such endeavors. Scientists and academic institutions are still primarily evaluated, valued, and ranked based on simple quantitative bibliometric indicators that emphasize individual, mostly disciplinary, productivity. We need a cultural change to reward, not punish, academics engaged in inter- and transdisciplinary research, particularly young scientists.

—Educating for Sustainability, International Sustainable Campus Network, 2017

In summary, the essence of sustainability is “creating a world that is green, prosperous, fair, and inspirational” (Hempel, 2012). Education for sustainability should be increasingly thought of as education, period. The University of Redlands has both the opportunity and responsibility to move in that direction.

ROLE OF THE SUSTAINABILITY COUNCIL

The emergence of the Sustainability Council in late 2013⁴ marked a new level of interest in and attention to the University's efforts to include sustainability in its planning and practice. Reporting to the provost, the Council functions as a cross-campus committee of students, faculty and staff who serve as a “sounding board,” clearinghouse, and coordinating body for strengthening campus sustainability initiatives and self-study assessments. The Council's mission is to investigate, facilitate and disseminate practices and policies that contribute significantly to the achievement and integration of social, economic, and environmental goals needed to make our campus community more sustainable. Students, staff, and faculty are encouraged to become engaged in the challenge of living sustainably, both at home and on campus.

⁴ After several proposals (2004, 2006, 2012) for a sustainability committee/task force/council for the University or for the College of Arts and Sciences, a university-wide council was formed in fall 2013 at the initiative of President Kuncl. Co-chaired by Noble-Goodman and Hempel, the Council met initially in late November and continued to meet through the spring of 2014, until the unplanned departure of Noble-Goodman in June. Hempel, who was scheduled for sabbatical in the fall, was unable to secure a replacement and the committee was essentially placed on hiatus during the 2014-2015 academic year, after which the committee was reorganized in fall 2015 with the help of the provost. The new Council commenced meeting in spring 2016, with Hempel as chair.

Council Goals

The Council seeks to promote five major goals throughout the University:

1. “green” facilities design, planning, and operations for both buildings and grounds;
2. sustainable use of energy, water, food, and nonrenewable materials, along with reduction of related waste and pollution;
3. curricular innovation for infusing sustainability ideas across teaching and research;
4. integration of environmental, economic, and equity considerations in pursuit of a diverse and successful academic community; and
5. community engagement and global outreach that utilizes service learning and study abroad in sustainability-related programs and outreach.

Areas of Campus Concern

The geographic scope of the committee’s work may eventually extend to the Salzburg center and the University’s regional campuses, but this report will focus exclusively on the operations and facilities of the Redlands campus, alone. Centers leased by the University, and therefore not directly manageable for sustainability aims, will need to be treated somewhat differently than property owned and managed by the University.

The sustainability issues and areas of concern identified for possible examination by the Council are organized around 18 themes or categories of campus operations and practices (see Table 1).

Table 1: Principal Areas of Concern

- | | |
|---------------------------------|--|
| • Curriculum | • Research |
| • Investment | • Co-curricular Education |
| • Environmental Health & Safety | • Diversity & Equality |
| • Dining | • Affordability & Social Mobility |
| • Material & Recycling | • Fair Labor |
| • Energy & Climate | • Sustainability Coordination & Governance |
| • Purchasing / Procurement | • Community Service |
| • Transportation | • Sustainability Literacy |
| • Water & Landscaping | |
| • Facilities | |

In each of these domains exist challenges and opportunities for improvements in campus sustainability. Over the past 15 years or so, the University has made significant progress in most of these areas, albeit at varying extents and levels of success.

Campus Sustainability Resource Hub

A major contribution of the Council this academic year has been the development of a campus sustainability resource and archive site: <http://sites.redlands.edu/sustainability>. Nearly 100 reports, publications, and proposals are organized on the site under the “Resources and Planning” section. The documents have been grouped into five subject areas: 1) Background Information about Sustainability, 2) Redlands Campus Plans and Reports, 3) Sample Reports from Other Campuses, 4) International Campus Sustainability, and 5) AASHE Reports and Guidelines. Students, faculty and staff are encouraged to use the site and to propose additional resources to be added to the site. The Council plans to add additional categories and features to the site in coming years, along with copies of each annual report.

SUMMARY OF PAST AND PRESENT SUSTAINABILITY INITIATIVES

The major sustainability actions, plans, and proposals developed within the University to date include the activities listed in Table 2 (below), in no particular order of importance:

**Table 2:
University of Redlands Sustainability Programs and Initiatives**

- Charter member of the Association for the Advancement of Sustainability in Higher Education (AASHE)
- Co-generation facility completed in 2006, reducing campus carbon footprint by over 25%
- Campus-wide green building commitment—two new buildings, Lewis Hall and Center for the Arts, have received LEEDS ratings of silver and gold, respectively.
- Comprehensive self-study of campus sustainability proposed as part of STARS 2.0 (AASHE)
- Merriam Hall; green residence hall experiment—Fall 2007-present
- Long-established campus recycling program
- SURF—“Sustainable University of Redlands Farm” established 2009
- Student-led initiatives for composting, environmental justice, recycling, water conservation, fossil fuel divestment, renewable energy and efficiency improvements
- Sustainability officer(s) as part of student government (ASUR)

- Students for Environmental Action club that sponsors Green Week on campus
- Other student organizations and chapters (e.g., U.S. Green Building Council, Greek organizations, etc.)
- Proposals for infusing sustainability across the curriculum and developing a minor in Sustainability Studies
- Proposal for new Center for Sustainability Studies in 2012
- New transit station for south campus being planned and designed
- Business & Sustainability joint-accelerated BA/MBA degree program being planned
- Better integration of sustainability goals with Race & Ethnic Studies, as well as campus diversity program
- Food service provider Bon Appétit's sustainable food initiatives (Farm-to-Fork, Eat Local Challenge, Marine Stewardship Council Sustainable Seafood, Fair Trade, Low Carbon Diet Calculator, Cage-Free Eggs, Crate-Free Pork, etc.)
- Formation of University-wide Sustainability Council in 2013 (revitalized 2016)
- Guidelines for sustainable investment practices being developed
- Energy improvements: co-gen upgrades, LED lighting upgrades
- Composting program proposal for SURF, plus Bon Appétit post-consumer composting bin
- Additional dining service improvements proposed, such as half-portion options, eliminating disposables, increasing clamshell use, shifting to digital receipts, partnering with Inland Harvest/Food Recovery Network to donate excess food for the needy
- Charter signee (presently inactive), American College & University President's Climate Commitment (ACUPCC)
- Suggestions for creation of sustainability coordinator position—staff professional
- Suggestions for creating work-study sustainability positions for students
- Declaring ambitious carbon targets and purchasing renewable energy
- Sustainability minor / new center for sustainability / sustainability atlas (GIS based)

ACADEMICS

The sustainability content of teaching and research at the University has been examined by the Council, although not in sufficient depth to evaluate each and every course or research project. An extensive list of 104 courses with significant sustainability content has been prepared by Jim Spee (Appendix 2). It represents an initial survey of courses across the campus, rated from one to three based on the current level of relevance and inclusion of sustainability themes in course content. Other courses will no doubt be identified and added with further effort to survey faculty

and students. Only 3 courses offered by the School of Continuing Education have been added to this list, but additional courses will presumably be added with the help of the School's new dean. Research relevant to sustainability goals has not been surveyed but is planned for future examination by the Council.

Curriculum

The challenge of infusing sustainability into the curriculum is partly a matter of making many faculty members aware that they are already dealing with sustainability subjects and concepts in some or all of their courses, even if they don't use the term or much of the pertinent literature. Another part of the challenge is to elevate sustainability ideas by use of modules or cases focusing on the integrative learning that sustainability requires. The goal is not to change the basic structure and content of most courses, but to find ways to incorporate sustainability themes in the way they are taught and in ways that enhance the relevance of the course for twenty-first century society.

Currently, the University offers several courses with high relevance to sustainability concepts and themes. Using the AASHE STARS template for tracking sustainability course offerings, the Council has begun the task of identifying courses using the following AASHE rubric:

A course may be a sustainability course or it may include sustainability; no course should be identified as both:

- *A sustainability course is a course in which the primary and explicit focus is on sustainability and/or on understanding or solving one or more major sustainability challenge (e.g. the course contributes toward achieving principles outlined in the Earth Charter).*
- *A course that includes sustainability is primarily focused on a topic other than sustainability, but incorporates a unit or module on sustainability or a sustainability challenge, includes one or more sustainability-focused activities, or integrates sustainability issues throughout the course.*

Following this approach, we can summarize relevant curricular resources as follows (Table 3). A complete listing of courses, department/program, and course descriptions is provided in Appendix 2.

Table 3: Sustainability Relevant Courses Offered at Redlands over Past Three Years⁵

- Number of undergraduate sustainability courses offered: 31
- Number of undergraduate courses offered that include sustainability: 62
- Total number of undergraduate courses offered by the institution: 93
- Number of graduate sustainability courses offered: 0
- Number of graduate courses offered that include sustainability: 5
- Total number of graduate courses offered by the institution: 5
- Number of academic departments that offer at least one sustainability course and/or course that includes sustainability (at any level): 26
- Total number of academic departments that offer courses of any kind (at any level): ~90

The Sustainability Council seeks to strengthen sustainability courses, modules, and relevant materials included in the Redlands curriculum. We recognize, however, that changes in course content and emphasis begin with changes in faculty priorities and exposure to interdisciplinary learning about sustainability.

Curriculum change is almost always difficult and painful. First, because curriculum “space” is rare and valuable, any proposed change to the status quo is viewed as a zero-sum game: anything added means something else has to be removed. Second, curricula invariably reflect the training and experience of the people who construct them. Many faculty members seek to “clone” themselves in the curricula that they help develop. Given the disciplinary focus and fragmentation of knowledge that characterizes most of higher education, concepts like sustainability, which are inherently interdisciplinary, may not be easy to integrate into an academic landscape designed by disciplinary defenders and micro-specialists. Similarly, it should go without saying that no one department or program should “own” sustainability as an academic idea or pursuit, and that includes Environmental Studies.

Many people use the term “sustainability” as a synonym for environmental improvement, leaving aside social and economic concerns. The language of synthesizing environmental, economic, and social equity concerns across generations is important, for this reason, and should not be weakened in ways that permit curriculum credit for one-dimensional versions of sustainability. If the economic and equity links to sustainability are missing in the curriculum, so is the concept of sustainability. Likewise, people who introduce environmental, economic, and social forces of change without integrating them and developing them across generations are

⁵ Compiled using University catalog listings and faculty interviews about courses taught (2016).

not teaching sustainability. Both integration and transformation are called for. Hence, the goal of infusing sustainability into the curriculum should be to achieve an integrated understanding of environmental, economic, and social drivers of change, along with their transformative potential, and then to apply that understanding to the challenge of securing resilient forms of intergenerational equity and quality of life.⁶

Research

The University has multiple research projects with strong sustainability themes, but no systematic survey has been conducted to evaluate the total number, type, and relevance of ongoing or planned research. Examples of current research include NSF-supported research on community forestry in Mexico, film making projects on sustainability, and studies of American consumption behavior.

STUDENT ACTION PLAN ⁷

Throughout the past couple of years, Students for Environmental Action (SEA) has identified opportunities to bolster sustainability on the University of Redlands campus, and has worked to make them happen. Below is a summary of their findings and suggestions. A summary of Council recommendations, addressing these suggestions, is provided at the end of this section.

Composting

In the United States, food waste is a big problem. According to the Natural Resources Defense Council, 40% of our country's food supply is wasted, totaling 75 billion pounds and \$165 billion per year. This waste is dumped in landfills, which pollute our communities and produce significant quantities of the potent greenhouse gas methane.

It is estimated that Bon Appétit generates over 250 pounds of organic waste per day, and this does not include an estimated 800 pounds of green waste we generate daily. Annually this could amount to an organic waste footprint of over 35 tons, with an estimated disposal cost of more than \$30,000. Additionally, we spend an estimated \$5,000 on fertilizers each year.

⁶ Quality of life implies environmental integrity, economic vitality, and social equity (gender, race and ethnicity, sexual orientation, etc.) across *present* generations, but is rarely extended to future, unborn generations.

⁷ A summary of student ideas and proposals compiled by Austin Tannenbaum ('17), president of Students for Environmental Action, and frequent participant and contributor to the Sustainability Council, 2016-2017. This plan was edited for inclusion in this report by members of the Sustainability Council.

The way we currently deal with waste is inefficient, both from an economic and ecological standpoint. Thankfully, this problem has a practical solution, which has proven itself successful time and again—composting! We already have a manual composting system in place on the Sustainable University of Redlands Farm (SURF), however it is limited in terms of the amount and type of waste that it can process. We would like University administrators to consider purchasing an industrial scale composter.

An ad hoc SEA student task force investigating composting concluded that an industrial scale composter would be a welcome addition to campus sustainability efforts. A specific model, Green Mountain Technologies (GMT) EF-30 In-Vessel Earth Flow system, was found promising, based on a preliminary investigation. It is fully automated and can process one ton of feedstock per day. With a base price of the system just under \$100,000 and an additional \$11,000 for shipping, installation, and training, the composter could pay for itself in avoided waste disposal fees and compost in 3-5 years.

We believe that this composting system is attractive for the University of Redlands not only from an environmental stewardship perspective, but also because it possesses a very appealing medium- to long-term return on investment. Using the University of Maine as a case study, we learned that they recouped their investment in less than five years.

Renewable Energy

Renewables are poised to become the premier energy source of the 21st century, with solar's share of power generation doubling seven times in the past 15 years according to Bloomberg. Sustainable energy, particularly in the form of wind- and solar-generated electricity, promises much less air pollution and emits negligible greenhouse gas emissions, if incorporated in the full production cycle.

Many students want the University to become a local leader in renewable energy and, in particular, to expand the use of photovoltaics on campus. Whether rooftop solar panels, parking lot arrays, ground-mounted arrangements, or a combination of all three, we feel that generating clean energy will confer both environmental and economic benefits to the University.

According to the Facilities Department, we spend close to \$1.9 million on electricity per year. With solar PV installations, we will be able to reduce this cost and our dependence on utility grids and become a more self-sufficient campus.

In order to accomplish this, the facilities department will need to resolve engineering and scale compatibility issues with our existing cogeneration plant. We believe this is possible, since many other entities, such as the Whole Foods store in Brooklyn, NY, have managed to generate electricity simultaneously from combined heat and power systems (CHP; cogeneration) and solar (for information about integrated solar and CHP systems, see <http://www.decentralized-energy.com/cogeneration-chp.html>).

This is a worthwhile endeavor, as the University will be able to substantially reduce its carbon footprint, lower its electricity bill, and protect itself against rising utility costs in the future.

Divestment/Sustainable Investment

Redlands Students have not been systematically surveyed on divestment issues, but a large number would like to see the administration and board of trustees develop strategies to reduce our financial reliance on the fossil fuel industry for campus energy operations and investment.

Fossil fuel companies may become increasingly risky investments. According to Bloomberg, investment in renewables projects is outpacing that of fossil fuels by a 2 to 1 ratio, and the costs of solar panels and wind turbines have continued to fall while efficiency has continued to rise.

This economic outlook, combined with the environmental necessity of reducing support for the fossil fuel industry, leads us to strongly suggest that the University of Redlands adopt an investment strategy that ultimately phases out investment in coal, oil, and gas companies, and seeks out sustainable investment opportunities, in their place. This can be done either by adding an “SRI” component to our Investment Policy Statement with Hirtle Callaghan or switching portfolio managers to an “SRI” specialist.

Doing so would allow the University to hedge against future instability in the fossil fuel industry’s financial condition, capitalize on the burgeoning renewable energy sector of the economy, and take an active role in the fight against climate disruption.

Bon Appétit Reforms

We have identified a number of actions Bon Appétit should consider in order to increase the sustainability of its operations. At the top of the list is the phasing out of disposable to-go boxes, dishware, cups and utensils. To achieve this, we have discussed the possibility of keeping disposables behind the counters, and giving them only to students who take their food to go. A complementary strategy is to charge more money for to-go boxes and utensils, thus incentivizing the use of reusable silverware and our eco clam shells. Of course, this must be done in conjunction with an education campaign, which SEA has embarked on this year and will continue to work on next fall.

We also recommend that Bon Appétit consider reduced meat offerings, including a “meatless Monday” to reduce the environmental footprint associated with our meat consumption. The Food and Agricultural Organization estimates that animal agriculture is responsible for approximately 15% of greenhouse gas emissions and 29% of agricultural water use, once crops used to feed animals are included. By practicing a meatless Monday, Bon Appétit can help reduce this impact, and foster awareness about this important environmental issue.

Finally, we suggest that Bon Appétit review their current contracts with food and beverage companies, such as Pepsi, which engage in unsustainable practices including palm oil production. If, upon review, it is found that a company is not environmentally and socially responsible, Bon Appétit ought not renew the contract and instead seek out more sustainable alternatives.

Federal Carbon Tax Support

With the time-sensitive issue of a warming planet looming large, it is imperative that we take action now. Economists from all points on the political spectrum agree that putting a price on greenhouse gas emissions is one of the most effective ways to combat climate disruption. For instance, a group of Republican statesmen including James Baker and George Shultz have put together a “conservative climate solution” carbon tax proposal.

A study by Regional Economic Modeling, Inc. reports that in the first twenty years, a carbon fee-and-dividend system could reduce emissions by 50%, create 2.8 million jobs, and save 230,000 lives.

We urge the University to use its intellectual resources to promote this and other solutions that can be used to address the urgent global challenges we face. While recognizing the political and professional constraints on university leaders, we nevertheless believe that more attention can and should be paid to higher education’s ethical and intellectual leadership role in promoting fair and innovative solutions to problems that, unabated, are likely to pose wrenching dislocations in the lives of current and future graduates.

Hiring a Sustainability Representative

Schools around the country, such as Pitzer College, University of San Diego, Humboldt State University, and many others, have a dedicated office or professional staffer assigned to promote and coordinate sustainability initiatives. Currently, the University of Redlands delegates sustainability matters to a number of different professors, faculty, and administrators, each of whom have many other responsibilities. Because of this, there is a lack of time, resources, knowledge, expertise, and coordination, which makes it hard to advance sustainability projects as quickly as we would like.

We therefore suggest hiring a full-time staff member whose principle responsibility is to promote sustainability on campus. This position would include hosting educational events, seeking out ways to incorporate sustainability to a greater degree in our academic curriculum, and carrying out sustainability projects such as the ones mentioned above.

We have good reason to believe that this position would pay for itself in cost savings over time, as well as enrich the experience of students in environmental studies and other departments, similar to how staff in the Center for Diversity and Inclusion and the Gender Justice Center enrich the lives of the students who participate in those programs.

Conclusion

All of these suggestions present exciting prospects, economically, environmentally, and socially. Through these projects, we can reduce the University's overhead, practice environmental stewardship, and demonstrate to current and prospective students that we strive to be a sustainable institution. According to the 2015 Princeton review, 60% of respondents said that information about a college's commitment to environmental issues would contribute to their application and attendance decisions. This presents a great opportunity to increase enrollment of bright, environmentally-conscious students at the University.

We are entering a new, green era of human history. The aforementioned projects represent practical steps we can take to ensure we are at the forefront of this sustainable evolution. We hope you seriously consider these recommendations moving forward.

COUNCIL RECOMMENDATIONS ON STUDENT ACTION PLAN

Composting

The Council recommends that the University's facilities department, in collaboration with the Council, Bon Appétit, and SURF, investigate cost-effective ways to expand composting on campus.

Renewable Energy

The Council commends the facilities department's efforts to investigate the use of microturbines and other means to scale back reliance on cogeneration during periods when solar power may be preferable on sustainability grounds. The all-or-nothing operating requirements of the current cogeneration facility make it very difficult to combine both solar and cogeneration equipment simultaneously. We look forward in the future to an energy system that will provide more flexibility for replacing fossil fuels with renewables, where cost factors and sustainability considerations permit.

Divestment

Despite significant but unquantified student support for divestment action by the University, the Sustainability Council has not reached any consensus on a particular form of divestment or implementation timetable for recommendation at this time. We strongly support responsible investment of some type, and we recognize that the Board of Trustees' Investment Committee has discussed this issue and continues to evaluate alternatives for responsible investment, including a strategy known as Environmental, Social & Governance (ES&G) investing. The Council has been briefed about this and other strategies — particularly Socially Responsible

Investment (SRI)⁸ — by Malaika Maphalala, an alum who specializes in SRI practices. Ms. Maphalala provided the Council with a list of sustainable endowment resources that are included in the appendix of this report (Appendix 4).

At least three approaches to investment — impact investing, socially-responsible investing (SRI), and environmental, social & governance investing (ES&G) — are in common use by investors pursuing sustainability objectives. They involve subtle differences in approach and emphasis, but all three reject the idea that *highest rate of return* is the only criterion that matters. Instead, a broader set of values drive investment.

The ES&G strategy under evaluation by our Board of Trustees' Investment Committee is well established and applied by many institutions of higher education. To understand how it differs from other approaches, it is helpful to provide additional context. The three approaches can be summarized and compared as follows:

Impact investing. An approach with an intention to achieve change in a particular goal (e.g., transition from a carbon-based energy system to one based on renewable energy) by investing proactively to bring about that change. The change may be aimed at a particular company or at people influenced by its products and services.

Socially-Responsible Investing (SRI). An investment approach that applies criteria of societal benefits to investment choices in ways that exclude particular companies or industries. It involves screening of prospective investments in a way that systematically excludes them from further consideration and makes some prior investments targets for divestment. As such, it has been interpreted as a negative approach to investment.

Environmental, Social & Governance Investing (ES&G). Rather than emphasizing exclusion of companies that don't measure up on values-based criteria, ES&G permits less restrictive choices, informed primarily by the good practices of companies and less by the products or services they produce. It is sometimes contrasted with SRI as a positive approach to investment that rewards good corporate behavior and governance.

In practical terms, ESG is more likely than SRI to support investment in fossil fuel companies, at least those with practices that are deemed to be environmentally and socially responsible within a corporate culture of good governance. SRI, if strictly applied, may discourage fossil fuel investment of any kind.

⁸ SRI is also known as "sustainable, responsible and impact investing."

The U.N. Principles for Responsible Investment provide global standards and performance criteria for applying ES&G investment strategies. Because there is significant overlap between these principles and the three responsible investment approaches, choosing one approach over the others is largely a matter of subtle differences in interpretation of what constitutes *responsible* investing. Perhaps the most important question to be considered in future investments is whether the morality of sustainability requires categorical exclusions of certain types of products, services, and behaviors, or whether something more flexible, nuanced and pragmatic is needed to guide institutions through the transition to more sustainable lifestyles and forms of development. In the case of fossil fuel divestment, the question goes to the tradeoffs between the financial benefits of operating a university with conventional carbon-based fuels and the climate impacts of a delayed energy transition on the quality of life of its current and future students, not to mention society, in general.

Bon Appétit Reforms

Recognizing the importance of a sustainable food system, the Council encourages continued dialogue between students and Bon Appétit on the issues raised in the Student Action Plan. Specific recommendations require further study and discussion, so we are not in a position to offer itemized recommendations at this time.

Federal Carbon Tax

While we support the idea of pricing carbon and other social and environmental externalities, we stop short of recommending a formal endorsement by the University's president (a recommendation of the draft Student Action Plan), except in cases where it is directly related to the mission of higher education. Many members of the Council have offered the opinion that the University can and should do more to prevent or reduce climate disruption, but few appear to believe that endorsement of particular public policies and programs outside of higher education should be encouraged without careful study, consensus building, and full attention to constraints on political campaign activity placed on nonprofit institutions.

Sustainability Hire

The Council has not done a preliminary study of needs for a sustainability coordinator or repurposing of existing staff and student workers, although we recognize the likely benefits of having a dedicated office or staff member to provide coordination, campus-wide. We also recognize the budgetary constraints that make such a hire very difficult at this time. Furthermore, we recognize the difficulty of demonstrating that such a resource would pay for itself in the short term. Nevertheless, we are painfully aware of how many of the day-to-day details of campus planning and operations lack the dedicated help of a professional in campus sustainability. More importantly, we suspect that many sustainability opportunities go unrealized

for lack of key staff with assigned implementation and coordination roles focused on sustainability. Perhaps it is also worth noting that a sustainability hire could greatly enhance our educational mission by helping infuse sustainability in our curriculum and co-curricular programs.

FUNDING and ENGAGEMENT

Capital Campaign

Sustainability is not only a vital goal for the University to pursue, but also a promising means for attracting support from donors and other funders. Although many campus sustainability initiatives can be undertaken without new and additional funding, the opportunity to link sustainability goals with funding campaigns is both pragmatic and ethically important as a way to demonstrate what we value as an institution of higher learning. Although current fundraising efforts have been largely structured and designed to meet traditional needs and aspirations of the University, there are still opportunities to link some of the already identified fundraising opportunities and targets to campus sustainability goals. Moreover, because the University has historically underutilized sustainability strategies in its funding campaigns, thereby narrowing its potential donor base in very significant communities of California and the nation, it now has an opportunity to better align its values and goals with new groups of donors for whom sustainability is a powerful attractant and justification for support. While some sensitivity may arise among traditional, politically conservative donors, who view sustainability as suspiciously “progressive,” the overwhelming convergence of sustainability goals with the evolving needs of higher education can no longer be denied.

Advancement

University Advancement is prepared to assist in the funding and community engagement of approved campus sustainability initiatives. Following the development of a strategic vision and budget for an initiative, the Office of Development is available to the Sustainability Council to explore sources of potential funding. This could include activities such as: a targeted fundraising campaign via Annual Giving (mail, phone, online crowdfunding) of University constituents; the development of a student philanthropy project; identifying and soliciting gifts from major donors; researching and applying for appropriate grants from foundations, corporations and government entities.

Campus and Public Engagement

The Sustainability Council encourages student, public, and employee engagement in sustainability on and beyond our campus. Using the concept of “sustainable communities,” we

seek to model on our campus and in our outreach to adjacent communities the notion of broad public engagement in creating a sustainable future.

While we believe that higher education is the foundation for creating a thriving, equitable and ecologically healthy world, we embrace and support the contributions of all sectors of industry and society in order to enact meaningful change that results in secure livelihoods and a better world for all generations.

— Association for the Advancement of Sustainability in Higher Education (AASHE)

OPERATIONS

A Summary of Facilities Management Efforts toward a Sustainable Campus

Energy Conservation

Energy Center. The University commissioned a new 1,500 kilowatt cogeneration facility in 2006. The facility provides two-thirds of the campus electrical demand during the winter months and one-half of the electrical demand during the summer months. In addition to creating electricity, the cogeneration facility captures the heat generated (waste heat) from the exhaust stream and jacket water (coolant) of the engine. This waste heat is repurposed into 500 tons of cooling via an absorption chiller, or equivalent to four million British Thermal Units (BTU) that is used for comfort cooling and heating for approximately 25% of the campus buildings. Moreover, the campus pool is heated year round by this facility and meets the strict National Collegiate Athletic Association (NCAA) standards for pool water temperature.

Light Emitting Diode (LED) Lights. The University complies with the State of California Title 24 requirements for energy efficiency measures with all campus renovations and new construction. In addition, when T8 fluorescent light fixture ballasts fail, the fixtures are replaced with their LED equivalent. This upgrade provides a substantial energy savings and allows for the addition of dimming switches to be added to the space. This addition allows users to adjust the light levels to a space to a desired setting, an added energy-saving benefit. An example of light adjustment would be when an instructor is using a projector. Instead of turning the lights off in a space, the instructor can dim the space so students can take copious notes during a presentation. Finally, most spaces on campus have motion sensors that will indicate occupancy of a space. Motion sensors are being added to all spaces during LED lighting retrofit as another means to conserve energy.

In the summer of 2016, the University's Athletic Field House football and baseball locker rooms were changed over from fluorescent to LED lighting. Furthermore, there have been numerous individual retrofitting projects that have occurred on campus, which include Gannett Center,

outdoor lighting for basketball and volleyball courts, replacement of the old incandescent lighting scoreboards at the soccer/lacrosse field and baseball field to state-of-the art LED scoreboards, and many more.

LED light fixtures are installed in Gregory and Lewis Halls’ interior spaces. In addition, the exterior lights in the Science Center courtyard will also be retrofitted to LED. It is estimate that \$22,000 a year will be saved by this retrofit.

Renovations. The University has recently renovated Grossmont Hall, now a co-ed dormitory. In this renovation, new LED lights have been installed throughout the building. Energy Star rated appliance are installed in the kitchens and the laundry rooms. A new energy efficient HVAC variable refrigerant flow (VRF) system was also installed. This system provides superior comfort at a higher efficiency than traditional heating and cooling systems with the option to heat and cool on a room-to-room basis.

Recycling

The University contracts with Republic Services to handle our recyclable waste stream. Republic Services was successful in diverting over 26 tons (98,360 pounds) of material from the landfill during the 2015-2016 fiscal year. The following is a breakdown of diverted material:

Sum of Tons Commodity	Total Tonnage	Total Pounds
Glass	0.63	1260
Mix Paper	2.77	5540
Cardboard	45.57	91140
Plastic - PET	0.21	420
Grand Total	26.52	98,360

The partnership with Republic Services allows the University to divert all recyclable materials through their facility. They sort the different recycling materials and if an item is contaminated, it is incinerated and diverted from the landfill.

The City of Redlands manages the University’s trash and green waste removal. On average, the University diverts 189 tons of green waste (tree trimmings, hedge trimmings, leaves, etc.) from the City landfill. The City will subsequently process the material into mulch and provides the mulch to the residents, free of charge.

Water Conservation

The University has been concerned about water conservation for years, not just during the recent drought. The campus sits on 160 acres of land with much of this land being landscaped with turf and trees. Since 2006, over 10 acres of turf have been removed and replaced with

mulch or planter beds utilizing drip irrigation. This reduces irrigation demand as well as evaporation around our trees. Some of these projects included: over 7 acres of turf removed around the Coastal Live Oak trees on the Quad, two acres of natural grass practice field have been replaced with synthetic turf, and 1.5 acres of miscellaneous turf areas removed on campus. Result: a 30% reduction in irrigation water usage on campus.

In the past, the University purchased non-potable (non-drinkable) water entitlements that are used to irrigate the campus landscape. This water comes from rain or snow melt that fills Big Bear Lake on our local mountain range. There is a finite amount of water that can be used by the University each year, but there are no restrictions or beneficial ramifications for using less water than entitled. However, these entitlements allow the University to consider alternative ways to reduce domestic (drinking) water consumption without impacting the environment, such as diverting non-potable water to cooling towers. As a result, in fiscal year 2016, over 6,000,000 gallons of domestic water was transitioned to our non-potable source.

Further water conservations measures would be:

- The use of low-flow toilets and waterless urinals have been added to the University construction specifications. In 2012, Facilities Management retrofitted all of the campus sink faucets with low-flow faucet aerators. This reduces the water flow at each sink from 1.5 gallons per minute to 0.5 gallons per minute.
- All laundry machines in residence halls on campus have been replaced with high efficiency washing machines that use 18 gallons less water per laundry load.
- Shower heads in all residence halls were changed to low-flow shower heads that each save approximately five gallons of water per minute.

Leadership for Energy and Environmental Design (LEED)

Lewis Hall

In 2005, the University constructed its first LEED building, the Center for Environmental Studies; receiving a Silver rating. This building is built underground with a green vegetated roof to reduce storm water run-off and 'heat island' effect and has a Photovoltaic cell array to capture sunlight and turn it into electricity. This building was designed to maximize the use of sunlight for interior spaces. Walkways and hardscape around building are constructed of reused pieces of old broken up concrete sidewalks, and the landscaping uses attractive and indigenous plants that are drought tolerant.

Art Center

In 2010, the University commissioned its second LEED building, Ann Peppers Hall; however, this time the University was successful in receiving a Gold rating. This building used many green building practices such as recycling all of the construction debris. The building utilizes state-of-the-art climate control systems; is designed to capture sunlight; is appointed with polished concrete floors; utilizes recycled carpet squares; captures all of the rain runoff in the detention basin adjacent to the structure; and does much more.

Climate Change

The University takes climate change seriously and understands the impact our decisions make to the environment. Therefore, we utilize a consultant arborist to aid us in the selection of trees on campus to assure that they are suited for this geographic climate will last long, require less irrigation, and shade adjacent sidewalks to reduce the 'heat-island' effect. When construction of new buildings results in the removal of trees, the campus policy is to replant trees. This has resulted in a net gain of over 200 trees in the past decade.

To reduce the need for added electrical production, we are deliberate in selecting equipment for upgrades. When considering pieces of equipment for replacement, a thorough feasibility study that includes energy efficiency is considered during the evaluation process. The University has adopted the policy of purchasing "Energy Star" equipment, whenever possible. Finally, the impacts of campus enhancement that are discussed in this report are hopefully positively affecting climate change.

The University continues with its program that all new roofs are installed with white reflective roofing material. This roofing material reflects the heat, allowing for cooler buildings.

In 2015, the University added four electrical vehicle charging stations for Redlands University community members. These charging stations can also be used by visitors for a nominal fee.

Bon Appétit

Bon Appétit has recently implemented the Lean Path System (LPS). This new system weighs, photographs and categorizes pre-consumer waste. LPS generates reports assisting the chef to insure minimizing over production. In addition, any food surplus is picked up daily by Inland Harvest, which feeds needy families. In 2016, 18,240 food servings were donated to Inland Harvest. Bon Appétit also gathers approximately 25 - 30 pounds of used coffee grounds daily for SURF compost. In 2016, approximately 5,700 lbs. of coffee grounds were diverted from the landfill and used for composting.

Another program Bon Appétit implemented is the use of Eco-clam shells. Students can purchase a reusable to-go box as an alternative to paper. This helps to decrease paper consumption and minimize contribution to landfills.

Other programs implemented by Bon Appétit that have reduced landfill waste include (1) offering customers reusable water bottles and offering boxed water with a biodegradable package instead of a plastic water bottle, and (2) offering the customer-decided option of receipts printed on demand, saving paper waste.

Bon Appétit has a program for Imperfectly Delicious Produce (IDP). Whenever possible, produce is purchased through the IDP program. IDP sources produce that would otherwise be thrown away due to appearance imperfections. Through this program IDP “re-imagines” this produce into juices, sauces and marinades.

Future Projects

The University currently has solar panels installed on Appleton and Lewis Halls but is looking into increasing the solar footprint on campus.

Facilities Management is currently looking at installing air hand dryers, in lieu of paper towels, in the restrooms at Irvine Commons, which will also reduce landfill waste.

PLANNING and ADMINISTRATION

Sustainability Coordination

Coordination on broad sustainability issues is a function of the Campus Sustainability Council. We do not have an office of sustainability or a dedicated officer—but we do have what would amount to several full-time equivalent positions thanks to the efforts of students, faculty, and staff in Student Affairs, Facility Management and other departments who contribute to campus sustainability work. Accomplishments across the entire University are listed in Table 1, in the Operations Section, and in Appendix 1. The membership and role of the Sustainability Council is summarized in the Overview section. This report summarizes Council activity for the 2016-2017 fiscal year.

Sustainability Planning

The University’s institutional plan, North Star 2020 (<http://sites.redlands.edu/north-star-2020>), was endorsed by the Board of Trustees in February of 2017. While North Star 2020’s primary focus is to provide strategic direction on academic initiatives, maintaining the sustainability of

the institution via adaptive management is a fundamental principle (for example, see initiative C1-Optimal Size). The plan specifically identifies several initiatives that contribute to the social equity dimension of sustainability by promoting increased access and attainment for first-generation and other disadvantaged students (see C5 Enhancing Access). The North Star 2020 plan also identifies several initiatives intended to contribute to community engagement (see R7 Civic Engagement and R8 Community Leadership).

The University's Campus Master Plan, updated in 2012, addresses the needs and objectives for our physical campus, infrastructure, and facilities. The plan identifies near-, mid-, and long-term recommendations coupled with design guidelines. The plan states (p.4):

Underlying every recommendation in this master plan are the principles of economic, ecological and social sustainability. While some new construction is recommended, most improvements involve remodeling and repurposing of existing buildings.

The Campus Master Plan specifically addresses sustainability topics such as climate, psychrometrics (e.g. exterior shading, thermal mass, direct solar control, and natural ventilation), water strategy, and reduction of the carbon footprint (transportation, heating and cooling, reducing power use, water conservation, and waste treatment). The concept of campus eco-districts is promoted (p. 46):

Proximity of the co-generation plant to east campus presents an opportunity to create an eco-district in which energy needs can be balanced and other sustainable practices can be instituted district-wide. Potential savings from a district-wide program can be much greater than those achievable in a single building. Such programs are most successful when buildings with a surplus of heat (large kitchens for example) are near buildings with heavy cooling loads (electronic equipment and server rooms, for example).

The Campus Master Plan also explores concepts for a Transit-Oriented Development (TOD) co-located around the new Arrow Line, a light-rail service provided by the San Bernardino County Transit Authority (<http://www.gosbcta.com/plans-projects/projects-arrow-rail.html>), which is expected to commence passenger service to and from San Bernardino in 2020-2021. The University is currently involved in planning for a TOD village, which will be designed according to sustainable principles, such as the U.S. Green Building Council's Leadership in Energy and Environmental Design standards.

Governance

Participatory governance is deeply integrated with decision making at the University of Redlands. The University has over 100 active clubs and organizations, along with a Club and Organization Advisory Board that provides oversight and support (see:

<http://www.redlands.edu/student-life/ClubsOrganizations/>). Students, staff, administrators and faculty serve on collaborative working groups and committees that provide recommendations to the President and/or his cabinet officers. Our Sustainability Council, as chartered by the President and Provost, has members representing all stakeholders at the university. Our students are especially encouraged to share their values and innovative ideas for improving the sustainability of the university. For more examples of our participatory governance, see:

- Sustainability Council website: <http://sites.redlands.edu/sustainability>
- <http://www.redlands.edu/meet-redlands/green-college>
- Students for Environmental Action (SEA)

FUTURE CHALLENGES

The many achievements chronicled in this report reveal encouraging progress in sustainability practices at the University of Redlands. There is little doubt that the campus is continuing to align its operations in food, energy, resource conservation and waste management with the social and environmental imperatives of sustainability. Opinions differ over the rate and magnitude of this progress, but few students, faculty and staff seem to question the general direction of the University, in this regard.

Colleges and universities have a fundamental responsibility in this era to get out in front of the political, economic, and social forces driving our society and to model the ideas, practices, and behavior that sustainability requires.

Naturally, the University of Redlands compares itself with peer institutions and other campuses in ways that are often reassuring or flattering. Our progress on sustainability over the past 10-15 years is perhaps best characterized as “real and significant advancement, but moderate overall achievement.” Much remains to be accomplished, but we need to celebrate what has already been added or improved. The prevailing view that our capacity for advancement is closely tied to our financial capability is probably overstated. Redlands has many opportunities to achieve low cost improvements through innovation, reconceptualization of learning objectives, reprioritization of budget allocations, and leadership that elevates sustainability concepts and goals in ways that inspire our campus community and better prepare our graduates for responsible roles in society.

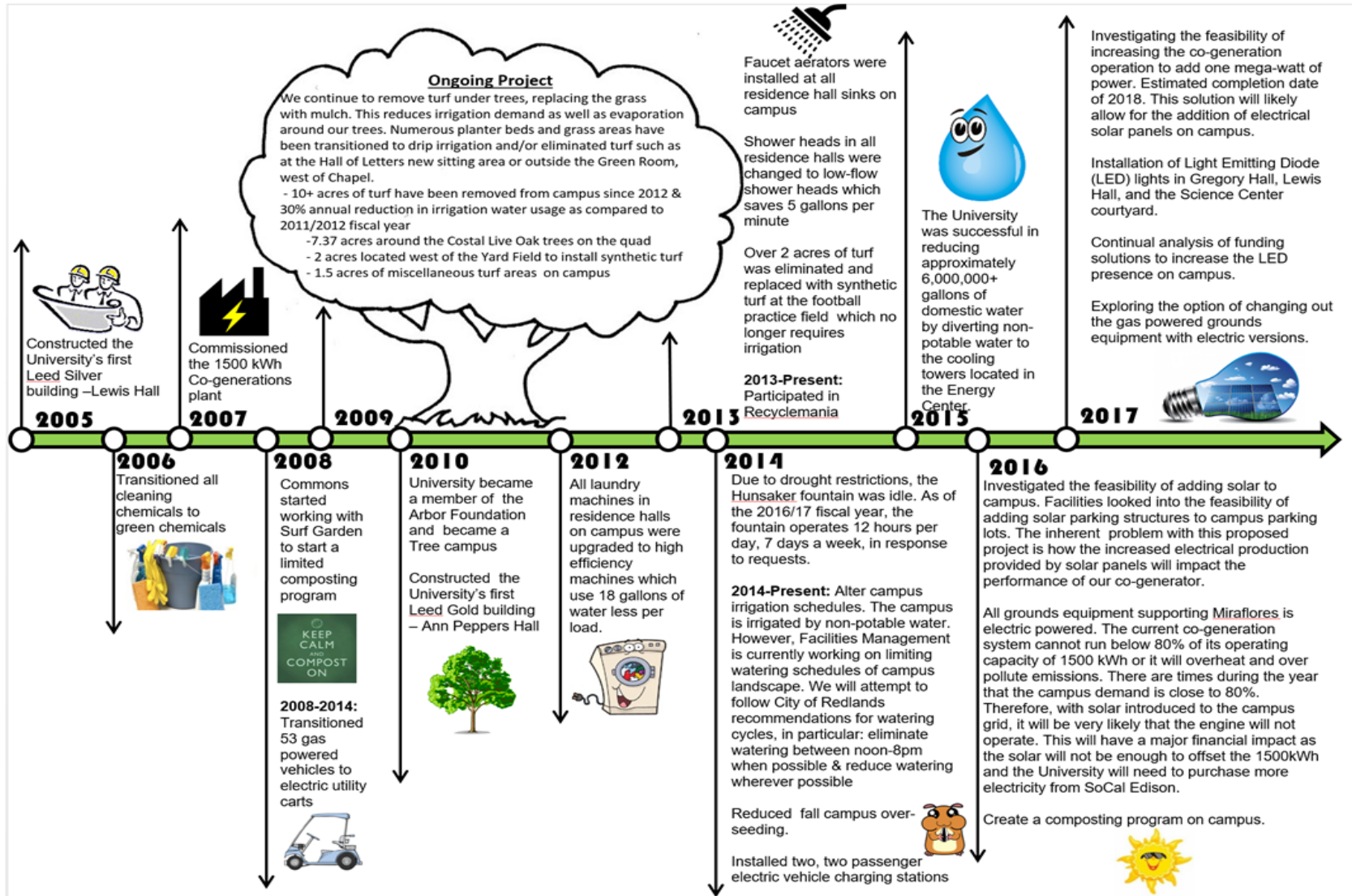
Despite the massive scale of sustainability challenges, many campuses are not ready to envision sustainability as something much bigger and deeper than, say, showcasing projects in green energy, recycling, and hiring of sustainability coordinators. Very few campuses are connecting the “3 E’s” and carefully integrating energy and environmental initiatives with those of equity and social justice, or with the redesign of economic institutions. Fewer still are creating a campus

culture of sustainability that affects everything from the core of what is taught to the ethics of what goes into the institution's investment portfolio.

Time is short and change is slow! No one should be surprised that higher education is proceeding incrementally with sustainability reforms, or that most institutions find it easier to showcase sustainability in a prominent building than enshrine it in their curriculum and hiring practices. Nevertheless, many sustainability advocates are broadening their base, urging campuses to commit to full-spectrum treatment of sustainability, and to embrace it as a central unifying philosophy guiding their mission, curriculum, operations, student life, strategic planning and development, capital campaigns, investment, and campus outreach. Whether Redlands can embrace sustainability in this way is partly a matter of shared leadership, partly a function of budgetary constraints, partly a question of how we define liberal arts education, and largely a matter of integrity and vision among our students, faculty, staff, alums, and prospective donors.

Education for sustainability focuses on the implications and consequences of our decisions and lifestyles for quality of life and for achieving social and intergenerational equity. It explores the profound connections between present and future; between human and non-human; between wealth and poverty; between individual autonomy and community interdependence; between learning and action...and justice. The community of life that it celebrates is intimately connected with life-support systems — ecosystem services and social safety nets — that allow us to secure a meaningful sense of community across generations. What could be more central to higher education than that?

APPENDIX 1: SUSTAINABILITY TIMELINE (Updated February 15, 2017)



Accomplishments

- 2008 – 2014. Transitioned 53 gas powered vehicles to electric utility carts
- 2007. Commissioned the 1500 kWh Co-generations plant.
- 2005. Constructed the University's first LEED Silver building—Lewis Hall
- 2006. Transitioned all cleaning chemicals to green chemicals
- 2008. Commons started working with Surf Garden to start a limited composting program
- 2009 – Present. We continue to remove turf under trees, replacing the grass with mulch. This reduces irrigation demand as well as evaporation around our trees. This too is an ongoing process. In the past year, numerous planter beds and grass areas have been transitioned to drip irrigation and/or eliminated turf such as at the Hall of Letters new sitting area or outside the Green Room, west of the Chapel.
 - 10 + acres of turf have been removed from campus since 2012.
 - 7.37 acres around the Coastal Live Oak trees on the Quad
 - 2 acres located west of the Yard Field to install synthetic turf
 - 1.5 acres of miscellaneous turf areas on campus
 - 30% annual reduction in irrigation water usage as compared to 2011/2012 fiscal year
- 2010. University became a member of the Arbor Foundation and became a Tree Campus
- 2010. Constructed the University's first LEED Gold building—Ann Peppers Hall
- 2012. All laundry machines in residence halls on campus were upgraded to high efficiency machines which use 18 gallons of water less per load.
- 2013. Faucet aerators are installed at all residence hall sinks on campus
- 2013. Shower heads in all residence halls were changed to low-flow shower heads which saves approximately five gallons per minute.
- 2013. Over two acres of turf was eliminated and replaced with synthetic turf at the football practice field that no longer requires irrigation.
- 2013 – Present. Participated in Recyclemania.
- 2014. Due to drought restrictions, the Hunsaker fountain was idle, except for special occasions such as the start of the academic year, new student orientation, Commencement, etc. As of the 2016/17 fiscal year, the fountain operates 12 hours per day, 7 am to 7 pm, 7 days a week, in response to students, staff, and administrator requests.

- 2014 – Present. Alter campus irrigation schedules. The campus is irrigated by non-potable water. However, Facilities Management is currently working on limiting watering schedules of campus landscape. We will attempt to follow City of Redlands recommendations for watering cycles, in particular:
 - Eliminate watering between noon – 8pm when possible
 - Reduce watering wherever possible
- 2014. Present. Reduce fall campus over-seeding. Historically, the campus lawns are over-seeded each fall with rye grass so that lawns are green year round. Since 2014, the University limits over-seeding, reducing water needed for this process and for watering lawns during the winter months.
- 2014. Installed two, two passenger electric vehicle charging stations
- 2015. The University was successful in reducing approximately 6,000,000 + gallons of domestic water by diverting non-potable water to the cooling towers located in the Energy Center.
- 2016. Investigated the feasibility of adding solar to campus. Facilities looked into the feasibility of adding solar parking structures to campus parking lots. The inherent problem with this proposed project is how the increased electrical production provided by solar panels will impact the performance of our co-generator.
- 2016. All grounds equipment supporting Miraflores is electric powered

The current co-generation system cannot run below 80% of its operating capacity of 1500 kWh or it will overheat and over-pollute emissions.

There are times during the year that the campus demand is close to the 80% range. Therefore, with solar introduced to the campus grid, it will be very likely that the engine will not operate. This will have a major financial impact as the solar will not be enough to offset the 1500kWh and the University will need to purchase more electricity from SoCal Edison.

Future Projects

- 2016 – Ongoing. Create a composting program on campus.
- 2017. Investigating the feasibility of increasing the co-generation operation to add one mega-watt of power. Estimated completion date of 2018. This solution will likely allow for the addition of electrical solar panels on campus.
- 2017. Installation of Light Emitting Diode (LED) lights in Gregory Hall, Lewis Hall, and the Science Center courtyard.
- 2017. Continual analysis of funding solutions to increase the LED presence on campus.
- 2017. Exploring the option of changing out the gas powered grounds equipment with electric versions.

APPENDIX 2: SUSTAINABILITY COUNCIL CURRICULUM REPORT

April 3, 2017

STARS 2.0 Technical Manual 25 AC | Curriculum

AC1 Academic Courses

A. Credit Rationale

This credit recognizes institutions that offer sustainability courses and that include sustainability in courses across the curriculum. Sustainability courses can provide valuable grounding in the concepts and principles of sustainability, help build knowledge about a component of sustainability, or introduce students to sustainability concepts. Institutions that integrate sustainability concepts throughout the curriculum prepare students to apply sustainability principles in their professional fields. Having sustainability courses and content offered by numerous departments helps ensure that the institution's approach to sustainability education is comprehensive and includes diverse topics. This will help students develop a broad understanding of the field. Likewise, offering sustainability courses and content in numerous

B. Criteria

Part 1

Institution offers sustainability courses and/or courses that include sustainability and makes an inventory of those courses publicly available.

Part 2

Institution's academic departments (or the equivalent) offer sustainability courses and/or courses that include sustainability.

In order to report and earn points for this credit, the institution must conduct a course inventory. The inventory should consist of two parts:

- 1) An inventory of sustainability courses that includes, at minimum, the title, department (or equivalent), and level of each course (i.e. undergraduate or graduate), as well as a brief description if the sustainability focus of the course is not apparent from its title*

- 2) *An inventory of other courses that include sustainability. The inventory includes, at minimum, the title, department (or the equivalent), and level of each course and a description of how sustainability is integrated into each course.*

A course may be a sustainability course or it may include sustainability; no course should be identified as both:

- *A sustainability course is a course in which the primary and explicit focus is on sustainability and/or on understanding or solving one or more major sustainability challenge (e.g. the course contributes toward achieving principles outlined in the Earth Charter).*
- *A course that includes sustainability is primarily focused on a topic other than sustainability, but incorporates a unit or module on sustainability or a sustainability challenge, includes one or more sustainability-focused activities, or integrates sustainability issues throughout the course.*

E. Reporting Fields

REPORTING FIELD (REQUIRED)	#
Number of undergraduate sustainability courses offered	31
Number of undergraduate courses offered that include sustainability	62
Total number of <u>undergraduate courses</u> offered by the institution	
Number of graduate sustainability courses offered	0
Number of graduate courses offered that include sustainability	5
Total number of <u>graduate courses</u> offered by the institution	
Number of academic departments (or the equivalent) that offer at least one sustainability course and/or course that includes sustainability (at any level)	31
Total number of academic departments (or the equivalent) that offer courses (at any level)	
An indication of whether data cover one, two, or three years	2
A copy of the institution's inventory of its sustainability course offerings and descriptions (text or upload)	

REPORTING FIELD (REQUIRED)	#
The website URL where the inventory of sustainability course offerings and descriptions is publicly available. (The inventory can be posted as a stand-alone document or incorporated into a course catalog, as long as the credit criteria are met.)	
A brief description of the methodology the institution used to complete the course inventory (including whether courses were counted by catalog listing or by courses taught)	
An affirmation that the submitted information is accurate to the best of a responsible party's knowledge and contact information for the responsible party. The responsible party should be a staff member, faculty member, or administrator who can respond to questions regarding the data once submitted and available to the public.	

Sustainability Courses

Sustainability courses are courses in which the primary and explicit focus is on sustainability and/or on understanding or solving one or more major sustainability challenge (e.g. the course contributes toward achieving principles outlined in the Earth Charter). This includes:

- 1) Foundational courses in which the primary and explicit focus is on sustainability as an integrated concept having social, economic, and environmental dimensions. Obvious examples include Introduction to Sustainability, Sustainable Development, and Sustainability Science, however courses may also count if their course descriptions indicate a primary and explicit focus on sustainability.
- 2) Courses in which the primary and explicit focus is on the application of sustainability within a field. As sustainability is an interdisciplinary topic, such courses generally incorporate insights from multiple disciplines. Obvious examples include Sustainable Agriculture, Architecture for Sustainability, and Sustainable Business, however courses may also count if their course descriptions indicate a primary and explicit focus on sustainability within a field.
- 3) Courses in which the primary focus is on providing skills and/or knowledge directly connected to understanding or solving one or more major sustainability challenges. A course might provide knowledge and understanding of the problem or tools for solving it, for example Climate Change Science, Renewable Energy Policy, Environmental Justice, or Green Chemistry. Such courses do not necessarily cover "sustainability" as a concept, but should address more than one of the three dimensions of sustainability (i.e. social wellbeing, economic prosperity, and environmental health).

Courses focusing on specific tools or practices such as GIS (Geographical Information Systems), or foundational courses such as chemistry or sociology might provide knowledge that is useful to practitioners of sustainability, they would not be considered as sustainability courses.

SUSTAINABILITY COURSES (NOTE: ALL COURSES ARE UNDERGRADUATE)

Course Title	Program / Department	Description	Catalog Page
109 Contemporary Issues in Ecology.	Biology	Environmentally oriented issues of current concern as they relate to fundamental generalizations about ecology. Sharpens the layman’s critical powers of observation and analysis and provides tools for intelligent decision making. Three hours lecture and three hours lab.	105
308 Green Business.	Business Administration	This course addresses various opportunities for businesses and consumers to enhance long-term environmentally sustainable practices at local, state, national, and international levels. Also examined is the role of environmental policy, leadership, technological advances, and public opinion in affecting the economies of businesses, and making the case for “greening” a business. Prerequisite: ACCT 210 or EVST 100. Not open to students who have received credit for EVST 340.	114
205 Ecological Economics.	Economics	The course explores the relationship between the ecological system and economic sub-systems. Topics of the course include the economics of entropy, throughput, alternative notions of economic sustainability, ecological impacts of technological change, limits to economic growth, and alternative economic systems.	140
455 Environmental and Resource Economics.	Economics	Overview of the theory and management of natural resource use. Topics include the control of air and waste pollution, solid waste management and recycling, forestry, curbing suburban sprawl, water management, and mitigation of climate change. Issues addressed from both theoretical and empirical perspectives. Prerequisite: ECON 350 or by permission. ECON 351 recommended.	142
215 American Environmental Literature.	Environmental Studies	Investigation of the ways in which American experience with nature is both shaped by and reflected through literary fiction and non-fiction as well as poetry.	163

Course Title	Program / Department	Description	Catalog Page
235 Environmental Impact Assessment.	Environmental Studies	Comprehensive overview of environmental impact assessment. Federal and State legislative foundations governing the content and process of environmental review are examined. Culminates in preparation of an environmental impact report analyzing the potential impacts and mitigations.	163
240 Global Environment.	Environmental Studies	Analysis of selected problems of global environmental systems, including climate change, ozone depletion, oceanic pollution, and trans-boundary biodiversity issues. Emphasis on the conversion of environmental science into international law and policy. Examines the roles of international organizations, governments, industry, and trade in the effort to achieve sustainable development.	163
277 Environmental Justice.	Environmental Studies	This course will focus on issues of environmental justice with a particular emphasis on racism, classism, and sexism—both in the U.S. and globally—and how situations of environmental degradation impact some groups more significantly than others. Aspects of global capitalism will be examined as a contributing factor to environmental injustice.	164
254 Climate Disruption: Science and Sustainability.	Environmental Studies	Examines dilemmas in climate science, politics, economics, and ethics—all with an eye to the implications for global and regional sustainability. Emphasis is placed on solutions and practices to minimize or adapt to climate impacts, ranging from green innovations in energy technology to climate-friendly changes in human values and behavior. Prerequisite: EVST 100 recommended.	164
275 Conservation in Practice	Environmental Studies	Analyzes the different factors—cultural, socioeconomic, political, and biological—that underlie environmental problems. It reviews some of the most important conservation tools developed and applied by various disciplines in an attempt to integrate them as a trans-disciplinary approach.	164
276 Market-based Conservation Policy.	Environmental Studies	Conservation policy increasingly relies on markets. Examples include non-governmental labels such as organic and fair trade as well as various payment for environmental services policies promoted by governments and international treaties. Concepts like equity, efficiency, the commodity chain, and the commodification of nature will be mobilized to analyze these policies.	164

Course Title	Program / Department	Description	Catalog Page
281 The Palau Expedition: Explorations in Sustainable Development.	Environmental Studies	This course combines the study of Palau's marine ecology and natural history, its clan-based system of social organization, and its efforts to achieve sustainable forms of development. Students participate in a series of interviews with traditional chiefs, elder women, high-government officials, and Palauan conservation and natural resource experts. Extensive field study and immersion in the ocean and rainforests require strong swimming skills and excellent fitness.	164
300 Environmental World Views	Environmental Studies	Interdisciplinary investigation of competing environmental perspectives and paradigms. Emphasis on implications for environmental science, policy, management, and ethics as influenced by world views. Students compare and contrast diverse environmental perspectives, strategic approaches, and decision-making processes with an eye to conflicting paradigms that underlie environmental controversies.	165
310 Environmental Law.	Environmental Studies	Exploration of the American legal system and the framework of creation, implementation, and interpretation of environmental laws. Study of the central role of regulatory agencies in developing and implementing environmental law and, of course, methods interpreting and shaping it. Includes analysis of major environmental laws and case studies. Emphasis on California and the West. Offered as needed.	166
335 Environment and Development.	Environmental Studies	Identifies threats to biodiversity and culture and relates them to poverty, inequality, and overexploitation. Traces roots of current problems to colonization, international exploitation, and national development models. Examines sustainable development debates and initiatives.	166
340 Green Business.	Environmental Studies	Examines various aspects of sustainability and options available to businesses to establish green practices. Explores opportunities that businesses create, the challenges encountered, and the contributions toward protecting the environment while simultaneously sustaining a profit. The role of environmental policy, leadership, technology, and public opinion is also investigated.	166

Course Title	Program / Department	Description	Catalog Page
345 Sustainable Development and Migration in Mexico.	Environmental Studies	Through visits, this class examines the role of indigenous communities in conservation and development projects, such as ecotourism, forestry, and environmental service provision. It analyzes the role of local social institutions of self-governance in these projects, and the impacts of migration to the U.S. on institutions, conservation, and development possibilities.	166
EVST 260 (Topics in Environmental Studies) Environmental Non-Fiction	Environmental Studies	Mentioned in Human-Animal Studies major, not a regularly offered course	188
211 Environmental Ethics.	Philosophy	Examination of ethical issues about the environment: foundational questions about moral status, public policy issues, and questions of personal morality. Traditional perspectives such as anthropocentrism and individualism are contrasted with alternatives such as the Land Ethic and ecofeminism.	237
207 Environmental Politics and Policy.	Political Science	Explores local, national and international contexts within which key decisions about the environment are made, emphasizing the U.S. experience. Focuses on the tensions between science and politics, health/safety and national security, and action and values. Develops theoretical and analytical tools to evaluate policy responses to major environmental episodes and controversies.	251
334 Native American Environmental Issues.	Race and Ethnic Studies	This course focuses on indigenous philosophies relating to creation and struggles for the land. It explores the situation in the Americas prior to contact, specific indigenous people, and current conflicts over land, resources, and environmental racism. Students will develop a holistic understanding of the Native ecological philosophies and environmental issues.	267

Course Title	Program / Department	Description	Catalog Page
122 Religion and Ecology: Environmental Ethics.	Religion	Consideration of the environmental crisis from a religious perspective, and a search to understand why ecology is a problematic concern within religion. Evaluation of theological, philosophical, and sociological factors that shape the various religious responses to ecological concerns.	271
346 Norms, Liberation, and Danger.	Sociology and Anthropology	Explores the dynamic relationship between individuals and society through theory and practice. Engage in "desocialization exploriments" to probe connections between society and self. Analysis of a range of theoretical perspectives, highlights the prospects for danger, liberation and environmental sustainability involved with accomplishing and resisting social norms.	280
ISYS 364 Geographical Information Systems: Managing Environmental Problems. (3).	School for Continuing Studies	Students, managers, and business professionals are introduced to the use and practical importance of Geographical Information Systems (GIS). Covers the design and functioning of GIS, applications to business and environmental problems, and management of GIS. Includes hands-on experience.	344
MGMT667 Business, Ethics, and Society. (4).	School of Business, MA in Management, MBA	Examination of the ethical, legal, and social environment of business and its impact on managerial decision-making.	348
SCIB460 Topics in Environmental Science	School of Business	Greater understanding of the science that underlies such environmental problems as ozone depletion and the loss of genetic diversity through explorations of the nature and scope of science relative to environmental issues. The methods of science, the limitations of scientific knowledge, and the role of science in society today are discussed.	350
EVSTCS100 Introduction to Environmental Studies.	School for Continuing Studies	Overview of the major causes and consequences of pollution, natural resource depletion, and loss of biological diversity. The primary objective is to develop an interdisciplinary understanding of our natural environment, the human impacts that degrade it, and the measures we can take to protect and to restore environmental quality.	409

Course Title	Program / Department	Description	Catalog Page
EVSTCS340 Green Business	School for Continuing Studies	Examines various aspects of sustainability and options available to businesses to establish green practices. Explores opportunities that businesses create, the challenges encountered, and the contributions toward protecting the environment while simultaneously sustaining a profit. The role of environmental policy, leadership, technology, and public opinion also is investigated.	409
260 Sustainable Buildings and Communities	Environmental Studies	This course will explore “sustainable” buildings and communities, from the latest architectural design features at the scale of buildings and houses, to the scale of neighborhoods and communities. We will look at energy-saving projects in Europe (St. Pölten, Austria, pictured above) and the U.S., and examples of Master Planned communities, analyzing real projects. We will work with architects and developers to design our own project, with alternative land use patterns, transportation systems, urban ecology programs, energy plans, and green architecture. We will look at the full array of renewable energy systems, from wind and solar to geothermal and green fuel alternatives. Students will be encouraged to think “out of the box,” incorporating everything from plug-in solar vehicles and transportation systems to biogas waste-to-energy programs.	
360 Frontiers of Sustainability	Environmental Studies	Education for sustainability is ultimately about what we leave future generations in the way of healthy ecosystems, socially just institutions, strong economies, great art, vibrant communities, and challenges worthy of a highly educated society. It represents our collective bequest to tomorrow’s children, as well as our moral obligation to secure life in the present—both human and nonhuman—by striving for a world that is green, prosperous, fair, and inspirational. Sustainability requires “braided” learning about environmental quality, economic vitality, and social equity—the 3 “E”s. As such, it is a powerful force for synthesis, weaving together science, ethics, policy, management, poetry, and many other fields in the pursuit of knowledge that sustains living systems.	
		Number of Courses:	31

COURSES THAT INCLUDE SUSTAINABILITY

Course Title	Program	Description	Catalog Page
324 Art and Identity.	Art History	Explores the role that artistic practices have played in the formation and maintenance of national, ethnic, cultural, spiritual, sexual, and gender identities. Geographic and temporal focus varies.	94
250 Service in Cambodia	Asian Studies	This travel course combines study of contemporary Cambodia and working on service projects. Service projects include such things as working at an elephant forest conservation project and teaching in schools. Field trips explore places like Phnom Penh, Angkor Temples, and the forest/jungle of Mondulkiri.	98
105 The Age of Big Science and Technology.	Biology	Study of science and technology rising to become major driving forces in modern life. Analysis of implications. Topics include the atomic bomb, the information age, biotechnology, modern scientific medicine, environmentalism, and geographic information systems. Student presentations. Four hours lecture and discussions.	105
457 Strategic Issues in Global Business.	Business Administration	Selected current topics and their impact on business operations are explored in depth. This course emphasizes the need for businesses to closely monitor and develop both an understanding and sensitivity to major social, cultural, environmental, and political issues.	116
Research in the Chemistry Department	Chemistry	The faculty of the Chemistry Department pursue research on a wide variety of projects. Students may choose to conduct research on computational chemistry, synthetic organic chemistry of natural products, synthesis and methodology developments, inorganic chemistry, the physical chemistry of membrane transport processes, development of analytical techniques using capillary electrophoresis, separation and ultra trace detection of biologically active molecules, detecting and modeling trace pollutants in environmental systems, and microbial carbon metabolism.	119

Course Title	Program	Description	Catalog Page
101 Mother Earth Chemistry	Chemistry	Designed for anyone interested in learning the chemistry and practice of simple arts like wine making, beer brewing, cloth dyeing, and the making of soap, cheese, yogurt, and high protein foods derived from soybeans (such as tofu and tempeh). Emphasis on learning by doing. No background in chemistry is required. Recommended for non-science majors.	119
260 Environmental Chemistry Field Experience.	Chemistry	Topics of interest in chemistry that fall outside the regular curriculum. These offerings may include research field experiences, environmental modeling, GIS and mapping, or other approved topics. Prerequisite: CHEM 102 or CHEM 131.	120
301 Quantitative Chemistry and Analysis. Spring (4).	Chemistry	Equilibrium and detailed acid-base chemistry specifically designed with applications in biology, clinical chemistry, or environmental analysis. Laboratory experience covers sample preparation, titrations, statistical analysis, and an overview of instrumental methods used in these applied fields, including molecular UV/Vis and atomic absorbance spectroscopy, fluorometry, ion electrodes, gas and liquid chromatography, and electrophoresis. Prerequisites: CHEM 132 and college algebra, or equivalent.	121
312 Advanced Environmental Chemistry.	Chemistry	This course investigates environmental chemistry of local air, water, and soil systems, combined with mapping so that spatial trends can be observed. Global issues are also considered, allowing this knowledge base to be applied in multiple settings. Laboratory and fieldwork heavily based on EPA methods of sampling and chemical analysis. Prerequisite: CHEM 232, by permission only.	121
360 Environmental Chemistry Field Experience and Modeling.	Chemistry	Environmental Chemistry Field Experience and Modeling takes place at the Sierra Nevada Aquatic Research Laboratory (SNARL). This course deepens understanding of natural systems, including chemical analysis of lakes, soils, and atmosphere; there is a GIS and mapping component. The final project consists of a comprehensive model of the study site. Prerequisite: permission of instructor required.	121

Course Title	Program	Description	Catalog Page
260 Latin America: Focus on Language, Culture, and Education.	Communicative Disorders	This travel course uses experiential learning, self-reflection, reading, writing, and discussion to provide students with a foundation for understanding cross-cultural differences in educational approaches. Students work with children in community-based educational programs, focusing on language-development issues (e.g., bilingualism, literacy, and the broad impact of difficulties with language on education).	125
251 South Asian Literary Cultures.	English	Exploration of South Asian literature, with a focus on the contemporary. Covers the cultural, historical, and political contexts of British colonialism and its effects on literary cultures of India, Pakistan, Nepal, Bangladesh, and Sri Lanka. Topics may include caste, gender, globalization, sexualities, and film cultures in South Asia and its diasporas.	153
256 Native American Literature	English	Introduction to contemporary Native American literature. Covers a breadth of genres: essays, poetry, short fiction, and film. Historical, cultural, and political approaches will shape class discussions, and students will engage in extensive textual analysis. We will consider carefully the role of American Indian women writers in this evolving tradition.	153
322 The Eighteenth Century: Regicides, Libertines, Bluestockings, and Fops.	English	From 1660–1820, British culture was characterized by fear of invasion, scientific experiment, political debate, “shopping,” colonial expansion, and anxieties about how to control all of this novelty. Explores dynamic literary, philosophical, and cultural energies shaping the precursor of our modern world.	154
351 Postcolonial, Global, & Transnational Literatures.	English	Survey of critical and creative texts from nations that have experienced colonization by European empires, particularly Britain. Studies how national, cultural, and individual identities have been radically altered by this experience. Themes include identity, power, migration, race, gender, representation and resistance. Pays close attention to social, cultural and historical contexts.	155
325 Public Lands Management.	Environmental Studies	Overview of the origins and history of public lands in the U.S. (National Parks, National Forests, Bureau of Land Management lands, and others). Exploration of policies governing public lands and historic and current management practices. Controversial issues on public lands will be examined and debated, as will compromises and solutions.	166

Course Title	Program	Description	Catalog Page
330 Environmental Policy Clinic.	Environmental Studies	Students and faculty create innovative policy responses to concrete environmental problems, typically resulting in a report or major presentation about a specific environmental improvement strategy to a government client or a group of stakeholders. Emphasis on policy and management strategy design; focus on political, economic, and managerial feasibility of environmental controversy resolution.	166
355 The Ecology of Australia and New Zealand.	Environmental Studies	This course focuses on 1) evolution of present- day Australia and New Zealand through plate tectonics, geologic, and climatic history; 2) the diverse ecosystems that we will encounter; 3) how the two different cultures of native peoples (Aborigines and Maori) impacted their environments and how white Europeans impacted the native peoples and environments.	166
375 Tropical Rainforests: The Amazon, the Andes & the Inca.	Environmental Studies	In this course we will travel to the tropical rainforests and the cloud forests of Peru to explore the climatology, ecology, and biodiversity of this region. We will explore the ancient culture of the Inca, their empire at Machu Picchu, and the modern Peruvian cultures that now thrive in this region.	167
663 Remote Sensing and Image Processing. (2).	GIS	This elective course is designed for students to gain a greater understanding of remote sensing and the ability to process images for GIS applications. Covers various software applications and an extended classification of their study area. Special topics of hyperspectral, advanced classification, active sensors, and non-reflective image data will be included.	175
151 The African Experience Before 1800.	History	The history of sub-Saharan Africa before the era of European Imperialism. The diversity of African societies will be emphasized by exploring the relationships between geography, environment, and history across the continent. Topics include cultural ecology, ethnicity, Africa's place in the Islamic world, and the Atlantic slave trade.	182

Course Title	Program	Description	Catalog Page
	International Relations	Global Political Economy and Economic Development (GPED). This concentration focuses on the economics and political economy of international trade, finance, and development. It examines applied and theoretical aspects of past and current approaches towards international political economy, with particular emphasis on the role of global institutions (such as the World Bank, International Monetary Fund, and specialized agencies of the United Nations system), various regional arrangements, and non-governmental entities (such as NGO's and transnational corporations) in driving and managing the increasing economic interdependence among countries. In this concentration students may also explore the relationship between domestic and international political economic interests, doctrines and practices that have characterized the field of economic development, and current efforts to foster economic development around the world.	189
	International Relations	Global Environment, Health, and Natural Resources (GEHN). This concentration focuses on the environmental, health, and resource issues that manifest within the global commons as well as in less-developed and emerging countries. It explores environmental issues, as well as environmental and resource economics, the economic and environmental impact of globalization, and the role of the World Bank, United Nations Development Program and United Nations Environment Program.	189
	International Relations	Global Institutions and Society (GLIS). This concentration focuses on global civil society issues, including questions of race, development and humanitarian aid, ethno-national conflict, gender, social movements, and democratization. It examines the power and influence of non-state actors including supranational organizations, non-governmental organizations, international law, international corporations, as well as sub-national socio-political groups and interests.	189
101 Introduction to Latin America.	Latin American Studies	Explores the history, environment, and diversity of human cultures shaping Latin America. Untangles the interrelationships between Latin American regions and global systems, including conquest, colonialism, and globalization. Takes a geographical approach, synthesizing the influence of environment, culture, technology, history, and the influence of power at various scales.	195

Course Title	Program	Description	Catalog Page
140 Race, Ethnicity, and Gender in Latin American History.	Latin American Studies	Examination of the economic, political, and cultural factors that shaped the historical construction of race, ethnicity, and gender in modern Latin America. Analysis of how different social and political mass movements influenced the evolution of racial/ethnic identity and gender roles.	195
150 History of Race in the Americas.	Latin American Studies	Focus on the social and cultural construction of race in North America and Latin America. Analysis of the predominance of the eugenics movement, ethnocentrism, misogyny, racial discrimination, and violence defined within the Americas during the 19th and 20th centuries.	196
330 "Drug Wars" in the Americas.	Latin American Studies	Exploration of the social control of drug use, both formal and informal, focusing on the Americas. The historic and contemporary development of U.S. drug laws is a focus, as is international cooperation and policies that deal with controlled substances. We look at ways drugs and drug distribution and consumption are molded by our cultural practices and, in turn, how they help construct our ever-changing vision of culture, particularly in an increasingly global society.	196
231 Introduction to Modeling.	Mathematics	Investigation of the process of modeling. Special emphasis placed on how to build, test, and refine models; how to analyze assumptions and results; and defining model limitations. Deterministic and stochastic models, rate equations and population dynamics, and statistical analysis. Final project tied to outside interests.	204
320 Ethics and Law.	Philosophy	Study of selected problems concerning law, society, and morality. Topics include legal paternalism, legal moralism, the ethics of criminal punishment, political obligation, civil disobedience, and justification of the state. Readings from classical and contemporary sources.	238
332 Philosophy of Science.	Philosophy	Examination of fundamental issues in the philosophy of science. Topics include the nature of scientific theories and theory change, scientific rationality, and realism/antirealism.	238
334 Epistemology.	Philosophy	Examination of traditional and contemporary problems in the theory of knowledge: the challenge of skepticism; role of belief, truth, and certainty; whether there are different kinds of knowing.	238

Course Title	Program	Description	Catalog Page
240 Feminist and Social Justice Activism.	Women and Gender Studies	Students will begin the course focusing on the theoretical underpinnings of campus activism, including an analysis of initiatives with a feminist and social justice twist. With that background in place, students will put theory into practice by developing individual or group activist projects.	240
211 Environmental Physics	Physics	Physics 211 takes a physics approach to environmental issues, paying special attention to the human interaction with the natural environment. We will cover such topics as weather, climate change, conventional and non-conventional energy, air and water pollution, and experimental techniques.	246
150 Foundations of Political Theory.	Political Science	Answers to questions such as "What is justice? (Or freedom? or equality?)" "Who is a good citizen and why?" "What is a good state?", and "What should my obligations be?" are debated continually, even as they shape much of the world we live in and share with others. This course introduces students to these core questions as developed by political theorists from antiquity to today, and challenges students to generate working answers to those questions.	250
226 Middle East and African Politics.	Political Science	A thematic introduction to the politics of the Middle East and Africa, in which students address themes and issues such as state formation, democracy and authoritarianism, political violence and terrorism, ethnicity and nationalism, gender and human rights, and the complex relationship between religion and politics.	251
307 Constitutional Law: Liberty and Authority.	Political Science	Analysis of the Supreme Court's interpretation of both substantive and procedural rights as they are outlined in the Bill of Rights and are applied to state governments. The ever-present tension between individual rights and social responsibility serves as the thematic framework.	252
354 Immigration Politics and Policy.	Political Science	Explores the concept of citizenship and how it relates to immigration politics, human rights, public benefits, legal privileges, and civic duties; borders and security; statelessness and exclusion; and how wars, terrorism, globalization, climate change, and other phenomena affect immigration flows and policies in the U.S. and globally. Prerequisites	253

Course Title	Program	Description	Catalog Page
349 Social Psychology.	Psychology	Survey of the effect of social environment and social interaction upon individuals' perceptions of themselves and others. Topics include self-perception, interpersonal perception, social influence, (e.g., conformity and persuasion), and social relations (e.g., aggression, altruism, and interpersonal attraction).	258
355 Psychology of Prejudice and Discrimination.	Psychology	This course focuses on psychological theory and research as a mechanism for understanding prejudice and discrimination. The class explores cases based on such dimensions as gender, race/ ethnicity, class, age, religion, sexual orientation, and physical ability in order to investigate the causes and consequences of, and interventions for, intergroup prejudice and discrimination.	258
Concentration: Environmental Policy	Public Policy	Not stated in catalog	261
342 Race and Social Protest.	Race and Ethnic Studies	Explores how people of color collectively mobilized and re-shaped social/political attitudes and forms of civic participation while challenging patterns of racism in search of social equality. Students study various ideological perspectives, leadership styles, and political events that influenced the civil, feminist, labor, and human rights movements.	267
222 Development and Change in the Americas.	Sociology and Anthropology	Explores the processes of development and social change in the Americas, in the historical context of capitalist transformation from colonialism to contemporary conditions of globalization. Strategizes ways to challenge existing patterns of global inequality by creating alternative forms of development and consciousness.	277
324 Homelessness and Hunger in America.	Sociology and Anthropology	This course explores the social, economic, and political causes of homelessness and hunger in the United States, mainly as a consequence of severe poverty. It combines classroom study with field experiences and community service work in outside agencies dedicated to addressing this problem.	279

Course Title	Program	Description	Catalog Page
331 Consuming Paris.	Sociology and Anthropology	In this course, we engage in the ethnographic method of participant observation to explore urban life in Paris. We study consumption as integral to our engagement with public space; the health of our environment; and diverse forms of citizenship, social belonging, and social inequality.	280
336 Consumers and Consumption.	Sociology and Anthropology	Explores consumption as a central dimension of social life that shapes and is shaped by the actions of consumers and has both constraining and enabling qualities. Examines links between consumption, social inequality, and environmental sustainability in the context of globalization.	280
337 Ethnicity and Ethnic Conflict.	Sociology and Anthropology	Investigation of the social and political connections between modernization and the emerging politics of ethnicity on a worldwide scale. Examination of current examples of ethnic conflict and exploration of theoretical approaches to race, ethnicity, nationality, and the modernization process. Review of ethnic and anti-ethnic political movements in the United States and worldwide.	280
340 Consume the Local/Hack the Global.	Sociology and Anthropology	Explores the connections between local and global social life, markets and cultures. Studies and practices the "hacker ethic" of sharing information to solve problems. Examines alternative forms of globalization from below, including the digital commons. Investigates myriad ways in which we hack the global through our consumption and relationships.	280
348 Economic Justice and Migration in Mexico.	Sociology and Anthropology	Explores economic justice by visiting projects that prioritize human needs over profit-making. Studies connections between economic justice and migration by meeting with migrants, refugees, and nongovernmental organizations. Cultural and linguistic immersion includes living in an international peace community in Mexico City.	281
406 Why Societies Change.	Sociology and Anthropology	Change is a persistent quality of human existence. But, what is social change, and how do we identify, explain, and interpret social change over time? We'll explore factors that encourage the expansion of human societies and contribute to their collapse, including the environment, religion, disease, and war.	282

Course Title	Program	Description	Catalog Page
430 Power, Marginality, and Exclusion.	Sociology and Anthropology	Study of the social process of identifying and attributing meaning to significant differences among individuals. Particular focus on: consequences of marginalization and exclusion, how social perceptions of differences change over time, individual and group responses to being labeled deviant, social isolation and potential creativity of being positioned on the social margin, and how power is distributed and exercised in these processes.	282
SP100 Foundations of Spatial Thinking.	Spatial Studies	Everything is related to everything else, but near things are more related than far things. How does this "First Law of Geography" affect you? In this class, we will study our world—from the global to the local—in spatial or geographic terms. We will become better spatial thinkers as we learn to recognize patterns and the processes that generate them.	289
125 Stage Design Fundamentals.	Theatre Arts	Overview of the function and responsibilities of scenic, lighting, and costume designers. Primary information about the tools and basic techniques used to bring the designer's concept to the stage is explored, as well as methods of creative problem solving and conceptual thinking specific to the theatrical design practice.	292
252 Changing Stages: Theatre History Part II.	Theatre Arts	Explores theatre as performance and cultural history as well as literary text. Geographic and temporal focus varies across world theatres from the late 1800's through the 21st century. Potential areas of study: Melodrama, Realism, Dada/Surrealism, Postcolonial Africa, People's Theatre, avant-garde and alternative companies, multicultural, women's, gay/lesbian, and disability theatre.	293
220 Comparative Feminisms.	Women, Gender, and Sexuality Studies	Focuses on feminisms from a transnational perspective, including indigenous feminisms, women's rights, and LGBT rights movements. Students will consider the relationship between grass roots activism and public policy and governmental change in transnational contexts. They will consider if a global movement for women's rights exists and if women's rights should be placed in the context of human rights.	298

Course Title	Program	Description	Catalog Page
230 Feminist Community Engagement.	Women, Gender, and Sexuality Studies	Explores the connections between theory and practice with academic readings on activism and community building and student experiences as interns or community activists with non-profit organizations. Possible topics for projects are sexual violence, battering, poverty among women, self-defense, women and the law, reproductive rights, or women's health issues	298
115 Business Speech.	Speech	Theory relevant to a variety of business speech situations, including speeches to inform, entertain, and persuade. Instruction in the following business speech situations: interviews, sales, technical reports, and conference speaking.	309
BAMG401 Critical Perspectives for Management.	School of Business	Develops advanced critical analysis skills in writing, reading, and oral presentation through considering aspects of leadership in management in its various dimensions and within diverse theoretical and disciplinary frameworks.	339
BUSB301 Critical Analysis: Written and Oral Communication.	School of Business	Deepens students' analytical skills in written and oral communication. Focus on purpose, depth, organization, research, style, and effectiveness. Special attention is paid to contemporary business contexts, as well as historical perspectives.	341
ENGB449 Literature, Globalism, and Enterprise.	School of Business	Study of literature from various genres, periods, and cultures through the twin lenses of globalism and enterprise. Themes may include cultural and economic hegemony; multinational business; post-colonialism; evolving representations of markets, exchange, and power; regionalism; authority and voice; etc.	343
SCIB 150 Current Issues in Science and Technology.	School of Business	Examination of some of the most important technological developments of this century and their impact upon human lives. Examination of the complex relationship among humans, the environment, and technology.	350
SCIB201 Natural Sciences Through Living Laboratories.	School of Business	Exploration of the principles and methodology of astronomy, marine biology, natural history, and ecology to understand the natural environment. Students will utilize campus-based facilities and field sites throughout Southern California as laboratories.	350
		Number of Undergraduate Courses:	62

GRADUATE COURSES

Course Title	Program / Department	Description	Catalog Page
School of Business, MA in Management	690 Strategy. (4).	Strategy sets a critical direction and guides the allocation of resources to achieve long-term organizational objectives. Examination of the formulation of strategy based on internal strengths and weaknesses, as well as external opportunities and threats in the context of changing technology and environment.	349
School of Education	616 Introduction to Social Justice and Advocacy.	This course will develop students' excellence in advocacy and social justice knowledge, skills, awareness, and action. Students will be provided opportunities to gain a heightened sense of critical consciousness, and foster a social justice orientation that can be used to inform their roles as counselors, educators, community leaders, and advocates.	385
School of Education	830 Foundations of Social Justice Leadership.	Examines social justice theories and their implications in developing leadership in school reform. Identifies the social, cultural, political, and economic factors that influence schooling in a diverse society. Provides leadership knowledge, skills, and abilities for dealing with societal and institutional barriers to academic success and personal growth of all learners. Prerequisite: admission to Ed.D. program.	394
School of Education	835 Critical Theory and Educational Leadership.	Explores pragmatics of educational leadership models grounded in social justice scholarship. Presents a range of school-reform models oriented toward equity-based, professional development goals within diverse contexts. Examines research-supported school improvement relative to transformation-based leadership policies. Guides candidates to develop a comprehensive model of school leadership practices relative to specific professional settings.	395
School of Education	844 Social Justice Leadership for Changing Organizational Systems.	Engagement in social justice discourse in analyzing organizations as paradigmatic political environments impacting one's work within them and the use of systemic leadership in change agency.	395
		Number of Graduate Courses:	5

PROGRAMS WITH SUSTAINABILITY FOCUS

Program/Department	Description	Catalog Page
Community Service Learning	Sustainable University of Redlands Farm (SURF)	75
Outdoor Programs	Environmental Service to the mountains	76
Environmental Studies	The department provides students with the tools to analyze complex environmental problems and contribute to their solutions. Two majors are offered; a bachelor of arts in environmental studies, and a bachelor of science in environmental science. Both majors integrate social, ethical, and environmental science understandings of environmental issues. Environmental Studies majors emphasize the social aspects of environmental issues, while Environmental Science majors emphasize the ecological, geological, chemical, and physical aspects of environmental issues. Capstone requirements and honors opportunities are the same for the bachelor of arts and the bachelor of science and are found under the bachelor of arts.	157
Wellness	Wellness programming on campus focuses on holistic student development through a variety of programs and activities. Programs focus on the following eight identified dimensions of wellness: Social, Physical, Emotional, Intellectual, Economical, Spiritual, Environmental, and Cultural.	76
Global Business	Three International Courses: At least three International courses chosen from the following areas: Economics, Environmental Studies, History, Political Science, Art, Asian Studies, Latin American Studies, Psychology, International Relations, Sociology and Anthropology, or Religion; at the 300 series level or above.	112

Program/Department	Description	Catalog Page
Environmental Studies Bachelor of Arts in Environmental Studies: 1. Business Concentration . . . 3 courses	EVST 340 Green Business (4) or BUS 308 Green Business (4) EVST 242 Food and Nature (4) EVST 276 Market-based Conservation Policy (4) ECON 101 Principles of Economics (4) ECON 205 Ecological Economics (4) BUS 136 Principles of Global Marketing (4) ACCT 210 Principles of Financial Accounting and Reporting (4) BUS 310 Principles of Management and Organizational Behavior (4)	158

AC2 Learning Outcomes

A. Credit Rationale

This credit recognizes institutions with sustainability learning outcomes associated with program degrees and/or courses of study. Learning outcomes help students develop specific sustainability knowledge and skills and provide institutions and accrediting bodies with standards against which to assess student learning.

B. Criteria

Institution's students graduate from degree programs that include sustainability as a learning outcome or include multiple sustainability learning outcomes. Sustainability learning outcomes (or the equivalent) may be specified at:

- *Institution level (e.g. covering all students)*
- *Division level (e.g. covering one or more schools or colleges within the institution)*
- *Program level*
- *Course level*

This credit includes graduate as well as undergraduate programs. For this credit, "degree programs" include majors, minors, concentrations, certificates, and other academic designations. Extension certificates and other certificates that are not part of academic degree programs do not count for this credit; they are covered in EN 11: Continuing Education. Programs that include co-curricular aspects may count as long as there is an academic component of the program. Learning outcomes at the course level count if the course is required to complete the program.

This credit is inclusive of learning outcomes, institutional learning goals, general education outcomes, and graduate profiles that are consistent with the definition of "sustainability learning outcomes" included in Standards and Terms.

Sustainability-Focused Program

Sustainability-focused programs are interdisciplinary academic programs that concentrate on sustainability as an integrated concept, including its social, economic, and environmental dimensions. The courses required for the successful completion of the program educate students about how different dimensions of sustainability relate to and

support each other in theory and practice. The sustainability focus of such a program should be explicit in the program title or description.

Sustainability Learning Outcomes

Consistent with the United Nations Educational, Scientific and Cultural Organization (UNESCO), student learning outcomes are defined as:

Statements of what a learner is expected to know, understand, and be able to demonstrate after completion of a process of learning as well as the specific intellectual and practical skills gained and demonstrated by the successful completion of a unit, course, or programme. Learning outcomes, together with assessment criteria, specify the minimum requirements for the award of credit, while grading is based on attainment above or below the minimum requirements for the award of credit. Learning outcomes are distinct from the aims of learning in that they are concerned with the achievements of the learner rather than with the overall intentions of the teacher.

Sustainability learning outcomes are statements that outline the specific sustainability knowledge and skills that a student is expected to have gained and demonstrated by the successful completion of a unit, course, or program. Learning outcomes do not necessarily have to use the term "sustainability" to count as long as they collectively address sustainability as an integrated concept having social, economic, and environmental dimensions. For example, an institution may have adopted a set of sustainability learning outcomes for its general education program that cover systems thinking, interdisciplinary capacities, social responsibility, and an understanding of the carrying capacity of ecosystems. Each outcome does not have to include the term "sustainability" for the set to be considered sustainability learning outcomes. Likewise, however, none of those outcomes would be considered a sustainability learning outcome on their own.

The Council for Higher Education Accreditation (CHEA) in the U.S. has further elaborated on student learning outcomes in the context of institutional accreditation:

Student learning outcomes are properly defined in terms of the knowledge, skills, and abilities that a student has attained at the end (or as a result) of his or her engagement in a particular set of higher education experiences.

Evidence of student learning outcomes can take many forms, but should involve direct examination of student performance—either for individual students or for representative samples of students. Examples of the types of evidence that might be used appropriately in accreditation settings include (but are not limited to):

- *Faculty-designed comprehensive or capstone examinations and assignments.*
- *Performance on licensing or other external examinations.*
- *Professionally judged performances or demonstrations of abilities in context.*
- *Portfolios of student work compiled over time.*
- *Samples of representative student work generated in response to typical course assignments.*
- *Information generated by methods like student satisfaction surveys, focus groups, or interviews are certainly useful in the accreditation process, but do not in themselves constitute direct evidence of student learning outcomes.*

E. Reporting Fields

Required

- *Number of students who graduated from a program that has adopted at least one sustainability learning outcome.*
- *Total number of graduates from degree programs.*
- *An affirmation that the submitted information is accurate to the best of a responsible party's knowledge and contact information for the responsible party. The responsible party should be a staff member, faculty member, or administrator who can respond to questions regarding the data once submitted and available to the public.*

Conditional

- *Required if the institution is reporting students who graduated from a program that has adopted at least one sustainability learning outcome:*
 - *A list of degree, diploma or certificate programs that have sustainability learning outcomes (text or PDF upload).*

APPENDIX 3: 2016 TREE CAMPUS USA



We inspire people to plant, nurture, and celebrate trees.

April 12, 2017

Ralph Kuncel, President
University of Redlands
1200 E Colton Ave
Redlands, CA 92374-3755

RECEIVED

APR 28 2017

OFFICE OF THE PRESIDENT

Dear Tree Campus USA supporter,

Congratulations on University of Redlands earning 2016 Tree Campus USA recognition. Tree Campus USA, a national program launched in 2008 by the Arbor Day Foundation, honors colleges and universities and their leaders for promoting healthy trees and engaging students and staff in the spirit of conservation.

To obtain this distinction, University of Redlands met the five core standards for effective campus forest management: a tree advisory committee, a campus tree-care plan, dedicated annual expenditures for its campus tree program, an Arbor Day observance and student service-learning project. Your entire campus community should be proud of your sustained commitment to environmental stewardship.

As you know, trees are a vital component of campus infrastructure and landscaping. First, properly-placed trees create a welcoming space for students, staff and alumni, providing much-needed relief from heat and a quiet place to reflect or study. Second, trees keep our air and water clean and remove harmful pollutants. Third, trees save money by reducing energy use and improving stormwater management. By earning Tree Campus USA recognition, your campus has shown its commitment to protecting and preserving its valuable tree resources and will reap their benefits for generations of students to come.

Again, congratulations! Your diligence in improving the environment and quality of life at University of Redlands contributes to a healthier planet for all of us.

Best regards,

A handwritten signature in blue ink, appearing to read "Dan Lambe".

Dan Lambe
President



APPENDIX 4: SUSTAINABLE INVESTMENT REFERENCES



Prepared by:
Malaika Maphalala, CPWA®
Private Wealth Manager
Natural Investments LLC
www.naturalinvestments.com
503-915-0090 / 877-424-2140

RECOMMENDED RESOURCES

Responsible Endowments Coalition: <http://www.endowmentethics.org>

- [Institutional Pathways to Fossil Free Investing](#)
- [Unburnable Carbon](#)

Sustainable Endowments Institute: <http://www.endowmentinstitute.org>

- [College Endowment Trends and Best Practices](#)

Intentional Endowments Network: <http://www.intentionalendowments.org>

- *ESG factors and risk-adjusted performance: a new quantitative model.* Published in Journal of Sustainable Finance & Investment 2016, Vol 6, no 4, pp 292-300

Go Fossil Fuel Free: <https://gofossilfree.org>

- Institutions that have committed to Divest: <https://gofossilfree.org/commitments>

Association for the Advancement of Sustainability in Higher Educations:
<http://www.aashe.org/>

Morningstar: [The Appeal of Sustainable Investing](#) – by Jon Hale

USSIF – The Forum for Sustainable and Responsible Investment: <http://www.ussif.org>

- [2016 Report on Sustainable, Responsible and Impact Investing Trends – Executive Summary](#)