
# Tracking Sustainability at Southern Oregon University Using STARS

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## Introduction/Problem Statement:

STARS is the Sustainability Tracking, Assessment & Rating System used by 923 higher-education institutions across the United States, and more recently the world. It is "a transparent, self-reporting framework for colleges and universities to measure their sustainability performance. STARS is intended to engage and recognize the full spectrum of colleges and universities - from community colleges to research universities - and encompasses long-term sustainability goals for already high-achieving institutions as well as entry points of recognition for institutions that are taking first steps toward sustainability" (AASHE). There are five different categories that the program is comprised of, and within each one there are specific credits that are intended to gather various information and data about sustainability from the specific school using the STARS program. The categories are Academics, which has 11 credits; Engagement, which has 15 credits; Operations, which has 23 credits; Planning & Administration, which has 14 credits; and Innovation & Leadership, which has 27 credits. Examples of credits within the STARS program include: Academic Courses (Academics), Outreach Campaign (Engagement), Food and Beverage Purchasing (Operations), Sustainability Coordination (Planning & Administration), and Fair Trade Campus (Innovation & Leadership).

Every credit that is fulfilled within the program is weighted and worth a specific number of points, but the value differs based on the category that it is under. The more credits that you provide information for, the more points you receive; the higher the number of points that you obtain, the better the chance to receive a higher rating. There are five ratings available for institutions to attain: Reporter, Bronze, Silver, Gold, and Platinum. To obtain a Bronze rating, you must score a minimum of 25 points; to obtain a Silver, you must score a minimum of 45 points; to obtain a Gold rating, you must score a minimum of 65 points; and to obtain a Platinum rating, you must score a minimum of 85 points. Not every credit included within the report is applicable to every institution, and thus will not be counted against them if cannot be fulfilled. All credits can count towards the overall STARS score, but institutions can choose which credits to pursue and which to not pursue; this being said, the more credits that are pursued, the more points an institution will receive, and thus a higher rating that can be earned.

STARS was created for a number of reasons; alongside recognition and community engagement are a variety of goals that the program was designed to help accomplish. These include: "providing a framework for understanding sustainability in all sectors of higher education, enabling meaningful comparisons over time and across institutions using a common set of measurements developed with broad participation from international campus sustainability community, creating incentives for continual improvement toward sustainability, facilitating information sharing about higher education sustainability practices and performances, and building a stronger, more diverse campus sustainability community" (AASHE). A comparison of

STARS scoring between Southern Oregon University and other Oregon State schools can be seen below:

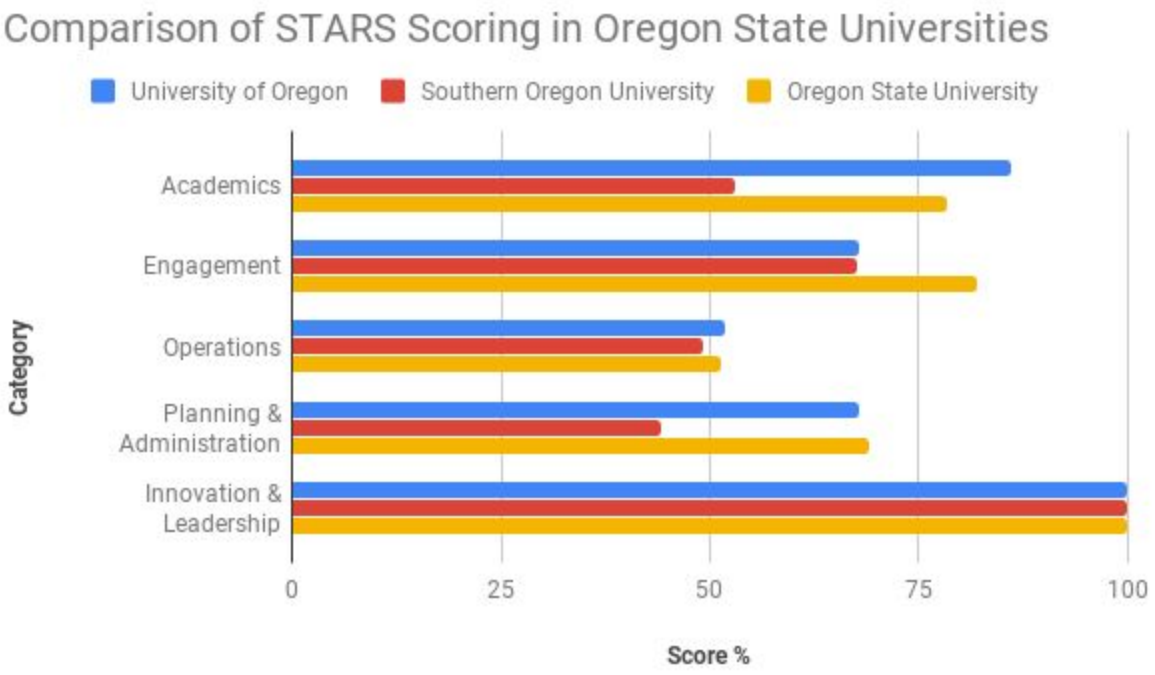



*Figure 1. Comparison of the overall STARS scores that institutions in Oregon have received.*

This graph can serve as a benchmark comparison of SOU to the other universities in Oregon that also utilize the STARS program.

Sustainability is a broad term that can be interpreted and defined in many ways. AASHE, Southern Oregon University, and even The Environmental Protection Agency each define sustainability in similar, yet different ways. AASHE, The Association for the Advancement of Sustainability in Higher Education, defines sustainability "in a pluralistic and inclusive way, encompassing human and ecological health, social justice, secure livelihoods, and a better world for all generations" (AASHE). They have shaped the definition to include multiple aspects of sustainability that include social and economic factors, rather than just environmental. Southern Oregon University defines sustainability in a similar way; they "broadly define sustainability as achieving increased well-being for humanity over time through an equitable and sustained utilization of critical natural capital" (John Gutrich, Sustainability at Southern Oregon University). Both organizations include sustainability goals presented by the Brundtland Commission of 1987, which state that sustainable development "will meet the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland Commission).

Southern Oregon University has submitted a STARS report in 2011, 2014, and 2017. In 2011, a bronze rating was achieved; in 2014 and 2017, a silver rating was achieved. The goal of

this project is to determine how feasible obtaining a gold, or even platinum, rating would be. I worked with Roxane Beigel-Coryell, who is the Sustainability Coordinator for Southern Oregon University, on gathering data from various sources throughout campus to complete the STARS report for the 2018-2019 school year. We also worked to determine specific credits that SOU is less proficient in, evaluated these credits to assess ways that point gaps can be closed, and identified projects and/or actions that can be taken to improve the overall STARS score as well as sustainability on campus. Additionally, we presented ways in which proposed projects will benefit the school (socially and financially), worked to have a better understanding of sustainability and how it is incorporated at SOU, and worked to improve the planning and development process for the implementation of sustainability at SOU.

The results gathered from this project could hold potential significance to the continued advancement of sustainability on Southern Oregon University's campus, as well as other institutions utilizing the STARS program. Institutions that have already begun to implement sustainable practices on to their campuses will have the potential to see what other schools are doing to further their efforts. Within the STARS program, schools are hopefully continuously working to better their overall ratings, and thus sustainable practices. As schools across the country achieve higher scores and ratings, other institutions are witness to it and could use it as motivation to better their scores and overall campus sustainability. Eventually, the hope is that universities and colleges will be continuously working towards creating a more green campus, and it will become something that is normalized, rather than praised as being the exception.

As more projects like this one are initiated at institutions around the country, more awareness is brought to the topic of sustainability and it is something that students will be working towards. Proposed projects to be implemented on campus and actions to be taken can help to set up the continuation of projects like this one, for years after the initial start. It holds the possibility of providing opportunities for students to enact long-term change on their college campuses that they might not have had the opportunity to do otherwise.

The implementation of this project on the Southern Oregon University campus provides an opportunity for school-wide change. At the end of this process, my intent is to conclude with an assessment of sustainability at SOU that has determined areas where there is room for improvement, as well as project proposals for potential future implementation on campus. At the end of the project timeline, not only will we have a completed STARS report with which we can learn more about ways we can better our sustainability efforts on campus, but we will also have specific projects that could be implemented. In addition to these more physical products, is the desire for an increased understanding of sustainability at the institutional level, and expanded awareness with regards to food and beverage purchasing, education, and water use on the SOU campus.

## Methodology:

This project is focused around two different key pieces: the first is gathering data necessary to complete a STARS report for Southern Oregon University; the second is analyzing the STARS report from 2017 to be able to determine areas of the institution that are less proficient in sustainability. This will be done using a Sustainability Scores Report spreadsheet that assesses each category of the STARS report by recording the number of possible points that can be attained in that area, how many points we earned, and then gives us those values in a percentage (showing how much of the total possible points we have earned). The lower the percentage is, the less proficient in that credit the university is; these values will help to tell us point differentials in credits, as well as which credits we can focus on improving. The table is shown below:

| | | FY 16 | | | STARS Version 2.1 Category Name | | FY 18 | |
|---|---|---|---|---|---|---|---|---|
| | Possible Points | Score | % | % Change | | Possible Points | Score | % |
| Academics | 58 | 29.74 | 51.28% | -5.04% | Academics | 58 | 26.82 | 46.24% |
| Engagement | 41 | 27.69 | 67.54% | -4.64% | Engagement | 41 | 25.79 | 62.90% |
| Operations | 70 | 34.35 | 49.07% | -3.60% | Operations | 70 | 31.83 | 45.47% |
| Planning & Administration | 32 | 14.12 | 44.13% | -6.54 | Planning & Administration | 32 | 12.03 | 37.59% |
| Innovation & Leadership | 6.5 | 4 | N/A | | Innovation & Leadership | 6.5 | 2 | N/A |
| **Overall Score** | | **57.22** | | 5.72 | **Overall Score** | | **51.5** | |

| | | FY 16 | | | | | FY 18 | |
|---|---|---|---|---|---|---|---|---|
| STARS Version 2.1 Sub-Category Name | Possible Points | Score | % | | STARS Version 2.1 Sub-Category Name | Possible Points | Score | % |
| Curriculum | 40 | 19.27 | 48.18% | 8.87% | Curriculum | 40 | 22.82 | 57.05% |
| Research | 18 | 10.47 | 58.17% | -7.67% | Research | 18 | 9.09 | 50.50% |
| **Campus Engagement** | **21** | **16.25** | **77.38%** | 0 | **Campus Engagement** | **21** | **16.25** | **77.38%** |
| Public Engagement | 20 | 11.44 | 57.20% | -9.50% | Public Engagement | 20 | 9.54 | 47.70% |
| Air & Climate | 11 | 5.37 | 48.82% | 1.82% | Air & Climate | 11 | 5.57 | 50.64% |
| Buildings | 8 | 2.72 | 34.00% | -21% | Buildings | 8 | 1.04 | 13.00% |
| Energy | 10 | 5.86 | 58.60% | -8.70% | Energy | 10 | 4.99 | 49.90% |
| **Food & Dining** | **8** | **2.3** | **28.75%** | -2% | **Food & Dining** | **8** | **2.14** | **26.75%** |
| **Grounds** | **4** | **3.8** | **95.00%** | 0 | **Grounds** | **4** | **3.8** | **95.00%** |
| **Purchasing** | **6** | **4.36** | **72.67%** | -1% | **Purchasing** | **6** | **4.3** | **71.67%** |
| Transportation | 7 | 4.23 | 60.43% | 2.14% | Transportation | 7 | 4.38 | 62.57% |
| Waste | 10 | 4.71 | 47.10% | -1.80% | Waste | 10 | 4.53 | 45.30% |
| **Water** | **6** | **1** | **16.67%** | 1.33% | **Water** | **6** | **1.08** | **18.00%** |
| Coordination & Planning | 8 | 5.25 | 65.63% | -3.13% | Coordination & Planning | 8 | 5 | 62.50% |
| Diversity & Affordability | 10 | 7 | 70.00% | -10.90% | Diversity & Affordability | 10 | 8.09 | 80.90% |
| **Investment & Finance** | **7** | **0** | **0.00%** | 0 | **Investment & Finance** | **7** | **0** | **0.00%** |
| **Wellbeing & Work** | **7** | **1.87** | **26.71%** | 22.72% | **Wellbeing & Work** | **7** | **3.46** | **49.43%** |
| Exemplary Practice | N/A | 1.5 | N/A | | Exemplary Practice | N/A | 1.5 | N/A |
| Innovation | N/A | 4 | N/A | | Innovation | N/A | 2 | N/A |

*Figure 2. A spreadsheet comparing the scores received in each general category and subcategory for 2016 and 2018.*

There are going to be many credits within the STARS report that have areas with potential for improvement; because of this, three to four credits will be chosen to focus on for

this project. The 2016 and 2018 STARS reports will both be analyzed individually, and then compared to one another in order to determine where the point differentials are the largest. After assessing the individual credit to determine where it is lacking, specific projects, or actions that can be taken, will be proposed that are specific to the area of sustainability that the credit is focused on. For the various projects proposed for each credit, the potential costs associated with it (resources, implementation, etc.) as well as the benefits that the implementation of that project will bring to campus will be looked at; additionally, the various projects, and credits, will be categorized based upon the time needed for implementation, as well as resources. Costs, in this model, are anything that decrease human well-being, as well as the literal monetary costs associated with the proposed action. Benefits are anything that increase human well-being, as well as increased and/or saved revenue for SOU and improved environmental quality (greenhouse gas emission outputs, lower water and gas usage, etc.).

The projects that will be put forth for various credits are not all intended for immediate implementation (unless deemed feasible). Increasing efforts for sustainability on campus is going to be a long process that takes more work than this project will be able to accomplish on its own. Teams of students are needed to continue this project so that the proposed projects can be overseen and actually implemented onto campus in the future. Though immediate action would be optimal, it is not necessarily practical.

The University of California Merced oversaw a similar project on their campus in 2018. The last STARS report that they submitted, in 2016, garnered a gold rating which was an improvement from their previous 2013 report, which garnered a silver rating. They are looking to submit another report in 2019, but are aiming to receive a platinum rating. In order to do this, UC Merced is implementing a 'Pathway to Platinum Analysis'. This consists of using a spreadsheet similar to the one I will be using to evaluate "gap areas and compared actual performance relative to desired performance to achieve STARS platinum". It also "identifies actions the campus could take based on three scenarios that would either close the point gaps, or that could achieve the maximum amount of points technically feasible" (AASHE 2018 Conference). This project resulted in an assessment of sustainability for the campus, as well as the identification of resource needs for proposed projects.

The University of California Santa Barbara conducted a project that appears to be even more similar to the one I am proposing. They received gold rating on three reports in a row, and were wanting to achieve platinum. Interns reviewed each credit that there was a point gap on to determine current operations and where points were missed, whether it was a performance or a measurement issue, potential solutions and what other campuses are doing to obtain points, and potential time and resource needs for the campus.

## Results and Discussion:

### Comparison of 2016 and 2018 STARS Scoring:

Based off of the results found from both the 2016 and 2018 STARS reports, Southern Oregon University has proven to be very innovative with the practices and initiatives that have been created and implemented on campus. Though, there is still a lot of work to be done in order to continue to increase sustainability efforts on campus, as well as our overall STARS rating. Since last year, the STARS rating that we have received has gone down by 0.94 points; the score we received in 2016 was 57.22 whereas the score we received this year was 56.28, which both garnered silver ratings. This decrease can be attributed to a decrease seen in overall scores for three of the five main categories: Academics, Engagement, and Operations. Planning and Administration saw an overall increase in its score, while Innovation and Leadership is not taken into consideration in the analysis of overall scores because the points that those credits make available are 'extra credit', meaning that if you do not pursue them, they will not count against your overall score. Some credits within this category will be analyzed based upon feasibility and potential for implementation. Although there were increases in scores of the credits found in the sub-categories, they were not sufficient enough to make up for the decreases seen in other credits.

### Academics:

In the Academics category, there was a 5.04% decrease in the overall score; it dropped from 29.74 to 26.82. Although there was an increase in the Curriculum sub-category, from 19.27 to 22.82 (the largest increase in scores seen between the two STARS reports), there was a decrease seen in the Research sub-category, where the score fell from 10.47 to 9.09. The score increase in curriculum can be attributed to an additional score in the AC-5: Immersive

Experience credit; in the 2016 report, the status of this credit was marked as ‘not applicable’, but since then, a summer Eco-Adventure class in the Environmental Science and Policy program has been added that allowed students to travel to Costa Rica for 10 days to learn about sustainable tourism and tropical ecology. AC-2: Learning Outcomes is a credit that was pursued, but only 1.17/8.00 points were received. There are two credits remaining in this category that have been marked with a status of ‘not pursuing’ in both the 2016 and 2018 STARS report; they are AC-6: Sustainability Literacy Assessment and AC-7: Incentives for Developing Courses. The content that each credit asks for would be fairly simple to implement at SOU; though each could prove to be somewhat time consuming, they would not only boost academics surrounding sustainability, but they would also be reasonably easy points to earn within the STARS program. The chart below shows scores differences between the 2016 and 2018 STARS reports for the Academics category:

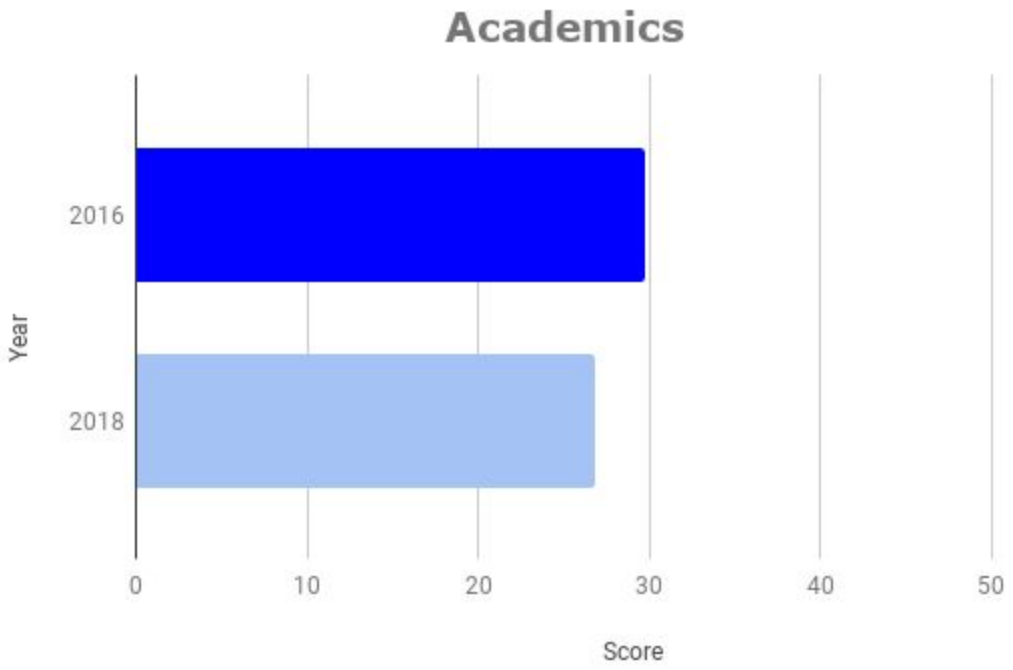



*Figure 3. A graph comparing the overall score received in the Academics category for the 2016 and 2018 STARS submissions.*

AC-2: Learning Outcomes is a credit that assesses the learning outcomes of various classes and degrees surrounding sustainability, as well as the percentage of students that graduate from programs that have adopted at least one sustainability learning outcome. The STARS score that we received in this credit decreased from last year due to the decrease in the number of students that graduate from one of these programs; in 2016 there were 202 compared to 2018, where there were only 167. Change in this category can be implemented at the institutional level,

division level, program level, or course level, but sustainability must be implemented within more of the courses offered at SOU in order for the STARS rating to increase, in addition to students understanding of what sustainability is. Iowa State University is an institution that has scored full points, 8.00/8.00, in this sub-category. The reason for this being that their total number of graduates from degree programs and number of students that graduate from programs that have adopted at least one sustainability learning outcome is the same: 7,026. This means that 100% of students, who graduated in 2016 (submission year), graduated from programs that have adopted at least one sustainability learning outcome.

AC-6: Sustainability Literacy Assessment consists of creating an assessment that gauges the sustainability literacy of students on campus. AASHE defines sustainability literacy as "knowledge about our shared sustainability challenges as well as ways to create solutions to these challenges"; the assessment would contain questions related to student "understanding of the interconnectedness of social, economic and environmental issues and challenges, and not just knowledge about the environment or environmental problems" (AASHE). Creating and administering an assessment of this sort would allow student groups on campus, as well as the university, to more accurately comprehend the extent to which students are aware of sustainability efforts on campus, and in a general sense. The only potential cost associated with the implementation of this project would be the compensation of a potential student worker or current faculty that would create the assessment, and then administer it (either physically in the classroom or via email). If this credit were to be pursued, there is potential to earn 4.00 points in the Academic category.

AC-7: Incentives for Developing Courses consists of a program on campus that offers incentives to faculty in different departments that currently incorporate sustainability into their courses, or are working towards developing courses that work to include sustainability in their course curriculum. Incentives may include release time, funding for professional development, and trainings offered by the institution. If implemented, there is potential to earn 2.00 points. An example of a school that implements this is California State University Chico; they have received an overall STARS rating of gold, and earned 36.28/40.00 in the Curriculum portion of the Academics category. They have created mini-grants to act as incentives to faculty to focus on the integration of sustainability principles into their curriculum. It has been successful at bringing together staff from 20 different departments across campus, and the Center for Excellence in Learning on campus has hosted a variety of workshops to provide resources for interested faculty on campus.

In the Research sub-category, the credit AC-11: Open Access to Research, we received 0/2.00 points in this year's report primarily due to the fact that Southern Oregon University does not have an open access policy for published materials that ensures that versions of scholarly articles written and published by faculty and staff are placed in a designated open access library for students to access. If published work is placed into a designated place for access, then it is strictly voluntary, and no form of incentive is offered. Colorado State University is an example

of a gold rated institution that has received full points on this credit by adopting "the Libraries Open Access Commitment by the CSU Libraries Faculty Council on May 2, 2012. The policy is a campus-wide commitment to open access and encourages self-archiving of scholarly articles in its shared institutional repository service, Digital Collections of Colorado, as allowed by copyright" (AASHE). The only cost associated with this initiative would be with a potential incentive program to encourage staff to make their published work available to students; otherwise, the implementation of this would serve to be a great resource to students, while also being cost-effective to the university.

Implementing changes within the Academics portion of the STARS report would assist in the initiation of a more sustainability focused culture at Southern Oregon University; though a number of sustainability focused and related classes are offered at SOU, it is not as widespread as it could be. Small changes, such as the introduction of sustainability-related discussions and lesson-plans into courses could lead to larger changes, such as the creation and addition of more of these classes. If more students were to begin to learn about sustainability and various related efforts, the culture surrounding the topic might become more popular and thus more widespread throughout our institution, and others.

## Engagement:

The score that was received in the Engagement category for the 2018 STARS report also saw a 4.64% decrease, from 27.69 in 2016 to 25.79 in the most recent report submitted. Though there was no change in score seen in the Campus Engagement sub-category, there was a 9.50% decrease in the score earned in Public Engagement, from 11.44 to 9.54. This can be attributed to a decrease in scores for two different credits; EN-12: Continuing Education and EN-13: Community Service (though this credit will not be discussed). The chart below shows scores differences between the 2016 and 2018 STARS reports for the Engagement category:

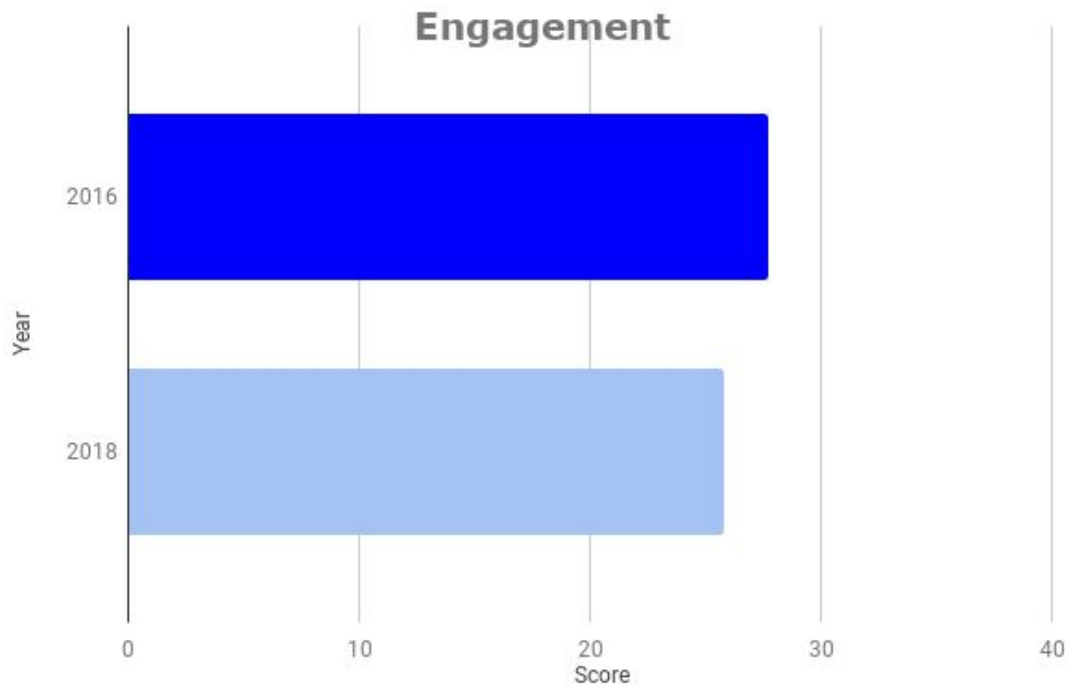



*Figure 4. A graph comparing the overall score received in the Engagement category for the 2016 and 2018 STARS submissions.*

In 2016, 3.00/5.00 points were earned for EN-12 compared to the 1.36/5.00 that were earned on the most recent submission. Continuing education courses include "non-credit courses and programs that train community members and help build knowledge about particular subjects. Continuing education is inclusive of non-credit, community education and extension courses and programs. Examples include non-degree career training, workforce training, credential maintenance courses, formal personal enrichment courses, self-directed learning and experiential learning (on and off campus)" geared towards older adults (AASHE). At Southern Oregon University, the program that has been developed to offer these courses is OLLI (Osher Lifelong Learning Institute). Essentially, this credit assesses the number of continuing education courses that address sustainability that are offered through OLLI; since 2016, the percentage of continuing education courses that address sustainability offered at SOU has dropped from 11.39% to 4.53%. In order to achieve more points in this sub-category, the university would need to develop and implement a higher number of continuing education courses for OLLI members to take. Costs associated with this would be compensation for the instructor teaching the course, as well as any potential additional materials that would be needed (dependent on the class), but SOU would also receive a course fee from those who take the class. An increase in the number of OLLI classes that address sustainability would not only have potential to attract more people to the school to take these classes, but it could also possibly raise awareness surrounding sustainability within a population of people that might not have been as receptive or informed about the topic.

A credit that has not been pursued in either of the STARS reports under the Campus Engagement sub-category, discussed throughout this paper is EN-6: Assessing Sustainability Culture. Similar to AC-6, this credit requires the creation and implementation of an assessment that gauges campus sustainability culture. The assessment would focus on sustainability values, behaviors and beliefs, and could also address awareness of campus sustainability initiatives. The assessment would be administered to students and faculty on campus more than once, over a period of time, to measure changes that may have taken place; an example of this would be to conduct the assessment with a group of students during fall term of their freshman year, and then again during fall term of their senior year to see if any beliefs or values have changed. If implemented, there is potential to earn one point in the STARS program.

An additional credit that has not been pursued is EN-7: Employee Educators Program. This credit focuses on the sustainability outreach and education within faculty on campus. The implementation of this credit would involve the designation of employee sustainability educators that would receive formal training to participate in an institution-sponsored orientation to prepare them to conduct peer outreach to other employees; the financial support (e.g. annual budget) and coordination among the administration by staff or faculty; and diverse representation throughout campus so that the sustainability outreach is communicated to every group present on campus. The biggest barriers currently keeping this credit from being implemented on campus is staff time needed to facilitate the trainings; current staff involved in sustainability on campus are stretched too thin to be able to coordinate this type of program. This has potential to be a fairly simple initiative to implement on SOU's campus if more staff (student and faculty) familiar with sustainability and outreach were to be hired or brought in specifically for trainings of this sort; it would not only assist in the further understanding of sustainability by university employees, but it could also have the potential to help students expand their understanding as well. If implemented, there is potential to earn three points.

A third credit that was not pursued is EN-15: Trademark Licensing, which applies to institutions whose logo is trademarked and appears on apparel that are eligible for FLA (Fair Labor Association) and a WRC (Workers' Rights Consortium) membership. This credit essentially aims to ensure that any school apparel sold on campus (in the bookstore, at sporting events, etc.) is being purchased from a company that is part of either the FLA or the WRC. The Fair Labor Association "combines the efforts of business, civil society organizations, and college/universities to promote and protect workers' rights and to improve working conditions globally through adherence to international standards" (Fair Labor Association) while the Workers Right Consortium "conducts independent, in-depth investigations; issues public reports on factories producing for major brands; and aids workers at these factories in their efforts to end labor abuses and defend their workplace rights" (Workers' Rights Consortium). This would act as an affirmation to buyers that the apparel they are buying was produced in a factory, or by a company, that treats their workers fairly and compensates them justly. This credit could be a little more time consuming and costly because there are only a specific number of companies

currently on the list of participants, so SOU would need to source their apparel from companies only on that list. If implemented, there is potential to earn two points.

## Planning & Administration:

In this category, there was a 7.59% increase in scores between the 2016 and 2018 STARS report. In 2016, the overall score for this category was 14.12 whereas the score that was received for the most recent report was 16.55. This increase can be attributed to an increased score in the Diversity & Affordability sub-category of this credit; each of the other subcategories saw a decrease in score. The subcategory with the biggest room for improvement is the Investment & Finance credit; in both the 2016 STARS report and the most recent one that was submitted, a 0/7.00 was received. This year, each of the three credits within that subcategory were pursued, PA-8: Committee on Investor Responsibility, PA-9: Sustainable Investment, and PA-10: Investment Disclosure (though PA-9 was mainly focused on in this section), but no points were received. The main reason for this being is that those who are a part of the SOU Foundation (those that control the funds and where they are spent) hold investments in a number of different companies; those endowment funds managed by the SOU Foundation are pooled and invested under the guidance of Kaspick & Company LLC. Endowment assets are managed with a goal to invest in a manner that maximizes return with a prudent level of risk. This investment philosophy is integrated with a spending policy that currently pays out 3.5% to the university. The total investment pool reported was $27,468,015, but of this amount, none of it has been invested in sustainable industries (renewable energy, sustainable forestry, etc.), businesses selected for exemplary sustainability performance, or sustainability investment funds. Because of this, SOU has received, and will continue to receive, no points for this credit. The chart below shows scores differences between the 2016 and 2018 STARS reports for the Planning & Administration category:

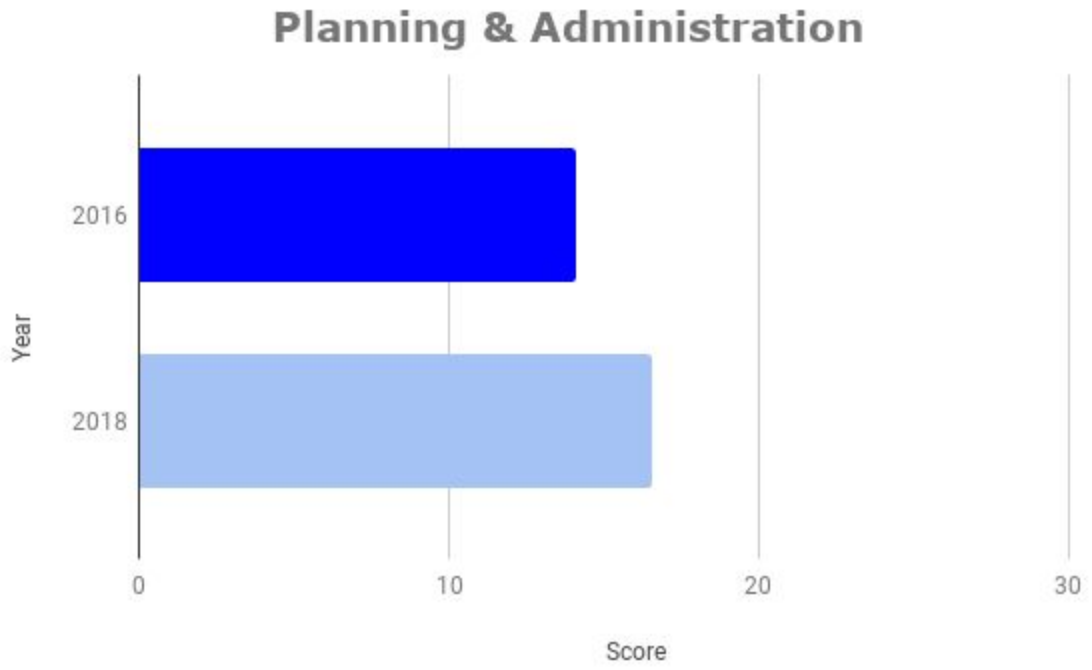



*Figure 5. A graph comparing the overall score received in the Planning & Administration category for the 2016 and 2018 STARS submissions.*

The University of Ireland (Cork) has earned the highest number of points on this credit out of any gold rated institution (6.00/7.00). They hold $10 million less than Southern Oregon University does in their investment pool ($17,905,136), but because of where they have chosen to invest it, they have benefited. In Figure 2 (page 18), a comparison table has been created to show initiatives that the University of Ireland has taken in terms of its investments; they have also signed as a signatory of the United Nations Principles for Responsible Investment (UN PRI) and have agreed to: incorporate environmental, social, and corporate governance (ESG) issues into investment analysis and decision-making processes, be an active owner and to incorporate ESG issues into ownership policies and practices, as well as to promote acceptance and implementation of the principles within the investment industry. According to the UN Principles for Responsible Investment (PRI), signing the "internationally-recognized Principles for Responsible Investment allows your organization to publicly demonstrate its commitment to responsible investment, and places it at the heart of a global community seeking to build a more sustainable financial system" (unpri.org).

As renewable resources and sustainable technology gain more and more interest, they will continue to transform industries and companies throughout our society. Jim Totty, of Sustainable Technology Investors Ltd. (a company that focuses on asset development and renewable energy resources in the United Kingdom and Europe), says that "this sustainable transition offers many attractive investment opportunities that give exposure to long term,

non-cyclical investment drivers. Security concerns will arise from fossil fuel depletion, and food, water, and resource scarcity, so institutional investors both need to mitigate insurance loss increases and the impacts of sea level rise and water shortages" (Totty, Business Green). Between 2012 and 2040, the US Energy Information Administration predicts that energy consumption throughout the world will increase 48%; with non-renewable resources being used at an alarming rate, renewable resources are going to be on the rise. In terms of investments, "clean water and sanitation, innovations in energy generation and distribution, improved health care, and more efficient transportation provide an abundance of opportunity for sustainable investment growth" (Ernst & Young, 2017). As renewable energy and sustainable technologies continue to become more necessary, the market will become more competitive and investment rates will increase. This can be seen in the costs of "utility-scale solar PV projects which have fallen over 70% in costs (approximately 14% each year) since 2010" (Jackson, *Forbes*), and soon other renewable energy sources will follow.

According to a UN report, "global investment in renewable energy shot up last year, far outstripping investment in fossil fuels" (Gabbatiss, *The Independent)*. In 2017, China was the world's leading investor in renewable energy, which is a result of the large amount of support towards solar energy. According to the UN Environment energy and climate branch, a record 157 gigawatts (which is equal to 68,609 utility scale wind turbines) was commissioned in 2017, which out-generated the fossil fuel energy generation by 87 gigawatts. Continued investment in the renewable energy sector has led to an "increased proportion of world electricity generated by wind, solar and other renewable sources from around 5% to 12%" in just over 10 years and "the global replacement of traditional fuels with renewables led to around 1.8 gigatons of carbon dioxide emissions being avoided last year- the equivalent of removing the entire US transport system" (Gabbatiss, *The Independent*).

Since 2012, sustainable investments have seen triple digit growth numbers (Ernst & Young, 2017) and will continue to grow. In a recent study by Morgan Stanley, "more than 10,000 funds and managed accounts were evaluated and showed that investing in sustainability has usually met, and often exceeded, the performance of comparable traditional investments" (Ernst & Young, 2017). With an increasing amount of millennials becoming more interested in the environment and sustainable technology, the market for renewable energy will continue to see an increase in growth. In another study done by Morgan Stanley, "when compared to non-millennial investors, millennials are incorporating sustainability not only into investment decisions, but overall consumer behavior" (Ernst & Young, 2017). These include investing in companies that aim to attain particular environmental or social outcomes or purchasing products from a sustainable company versus not.

The implementation of this credit at SOU has the potential to divert funds into more sustainable industries that would not only reflect positively on the university, but it would also lend a hand towards redirecting where other universities and individuals put their money. Renewable energy and sustainable technology is an up and coming industry, so investing our

funds now would show that SOU is committed to taking a step in the "right" direction (in terms of sustainability and clean energy) while also working towards increasing our STARS score.

## Innovation & Leadership

Because the credits in this category are considered optional, the number of points that can be attained can vary. This credit "recognizes institutions that are seeking innovative solutions to sustainability challenges and demonstrating sustainability leadership in ways that are not otherwise captured in STARS" (AASHE). In the 2016 STARS report that was submitted, SOU earned 1.50/2.5 points in the Exemplary Practice category, and earned 4.00/4.00 in the Innovation category; in the 2018 STARS report, 1.50/3.50 points were earned in the Exemplary Practice category and 2.00 points were claimed in the Innovation category.

In the Exemplary Practice category, there are a total of 23 different credits that institutions can choose to pursue; these range from Green Athletics to Fair Trade Campus to Serving Underrepresented Groups. In the most recent report that was submitted, only three credits were pursued: Grounds Certification, Bicycle Friendly Campus, and Campus Pride Index. There are several others in this same category that could be easily implemented on campus that would neither take much time nor many resources. These include Sustainability Course Designation, Campus Water Balance, Pay Scale Equity, and Stormwater Modeling.

Out of the credits listed, IN-1: Sustainability Course Designation would be the easiest to implement because, though somewhat vague, the only criteria that STARS requires for this credit is that the "institution formally designates sustainability courses in its standard course catalog or listing" (AASHE). AASHE defines a sustainability course as a "course in which the primary and explicit focus is on sustainability and/or understanding or solving one or more major sustainability challenge" (AASHE). In credit AC-1: Academic Courses, all of the courses offered at Southern Oregon University were evaluated to determine their level of relation to sustainability (related or focused). Using this evaluation, the classes that qualify for a Sustainability Course Designation could be defined, and then labeled.

Schools around the country have chosen to do this in a variety of ways; Dickinson College in Pennsylvania, has designated specific courses as 'Sustainability Connections' or 'Sustainability Investigations' by either including a 'SCON' or 'SINV' tag with the class; additionally, these courses are included on a list (by term) that specifies them as sustainability courses. Another institution that has implemented Sustainability Course Designation is the California State University, Chico; rather than associate a catalog tag, they have included a green leaf next to the course name to indicate the sustainability course. Implementing a system similar to one of these, would not be difficult at SOU, and would only improve our course designation system as well as our STARS score.

Another credit that would be a fairly easy one to pursue would be IN-16: Campus Water Balance; though it might take longer than other credits to implement, it would benefit our STARS score as well as our overall campus sustainability. The criteria that STARS asks for is that the "institution has calculated a natural water balance for the campus to assess the sustainability of its water withdrawals (e.g. institution water use compared to a water budget based on precipitation, potential evapotranspiration and campus/watershed area)" (AASHE). Very few gold rated schools have implemented this credit, but an institution that has is Seattle University; essentially, they took the total area of their campus and multiplied it by the average annual rainfall that Seattle receives. Additionally they took evapotranspiration into account, as well as their net water intake from the environment and average annual water consumption on campus.

Somewhat similar to the Campus Water Balance credit is IN-15: Stormwater Modeling; this credit requires a comparable modeling application in order to attain the necessary information. The STARS program is fairly vague when it comes to what is required to fulfill this credit; the criteria is that the "institution uses stormwater modeling to assess the impact of LID (low impact development) practices and green infrastructure on campus" (AASHE). Princeton University is one of few institutions that has implemented this credit, and they did so by utilizing a hydrologic stormwater model to evaluate "the baseline stormwater conditions (2006) and to the model the development scenarios (and mitigation strategies) anticipated by the 2016 Campus Plan" (AASHE). They then have taken this model and begun implementing various projects throughout campus in order to meet their Campus Plan. If SOU were to implement this credit on campus, it could prove to be fairly time intensive, as well as financially exhaustive depending on what sort of projects the university approve for application.

Projects that have potential for implementation under this credit would be permeable pavements, rainwater harvesting, roof gardens, bioretention areas, and infiltration swales. According to the Environmental Protection Agency, a "study of 17 LID case studies around the country found that, in the majority of cases, total capital cost savings ranged from 15-80% when LID methods were used" (EPA). The table below provides cost savings when conventional and LID practices are used; though SOU's campus is already well vegetated, I'm sure improvement made in the irrigation system would save money, alongside improvements made in various impervious surfaces throughout campus, such as permeable pavement.

**Sample Costs: Comparing Conventional Stormwater Controls with LID Techniques in a Corporate Development (Tellabs) in Naperville, Illinois**

| Construction Item | Cost of Conventional Development | Cost When Using LID Practices | Dollars Saved with LID |
|---|---|---|---|
| Site preparation | $2,178,500 | $1,966,000 | $212,500 |
| Stormwater management | $480,910 | $418,000 | $62,910 |
| Landscape development | $502,750 | $316,650 | $186,100 |
| **Total** | **$3,162,160** | **$2,700,650** | **$461,510** |

*Figure 6. A chart comparing the costs of conventional development versus low-impact development practices for stormwater management.*

One of the other credits that would be fairly easy to implement on campus would be IN-20: Pay Scale Equity. Essentially this credit assesses and compares the compensation of the highest paid employee to the lowest paid employee on campus. The criteria that this credit asks for is that the "institution has a maximum compensation scale ratio of 1:15, where 1 represents the compensation of the lowest-paid full-time employee and 15 represents the compensation of the highest paid senior administrator (e.g. president or chancellor)" (AASHE). This credit might prove to be somewhat time intensive, in terms of collecting the necessary information from various people around campus, but once obtained it would not be difficult to complete the credit.

## Operations:

In the operations category, a 3.60% decrease was seen in the overall score from 2016 to 2018. In 2016, the score received was 34.35 whereas in 2018 a score of 31.83 was earned. Sub-categories in this section include: Air & Climate, Buildings, Energy, Food & Dining, Grounds, Purchasing, Transportation, Waste, and Water. Each category saw a decline in its score except for Air & Climate, Water (which saw a slight increase) and Grounds, which did not change. Due to the number of sub-categories included under the Operations section, and the scores received, only Food & Dining and Water will be focused on in this analysis. The chart below shows scores differences between the 2016 and 2018 STARS reports for the Operations category:

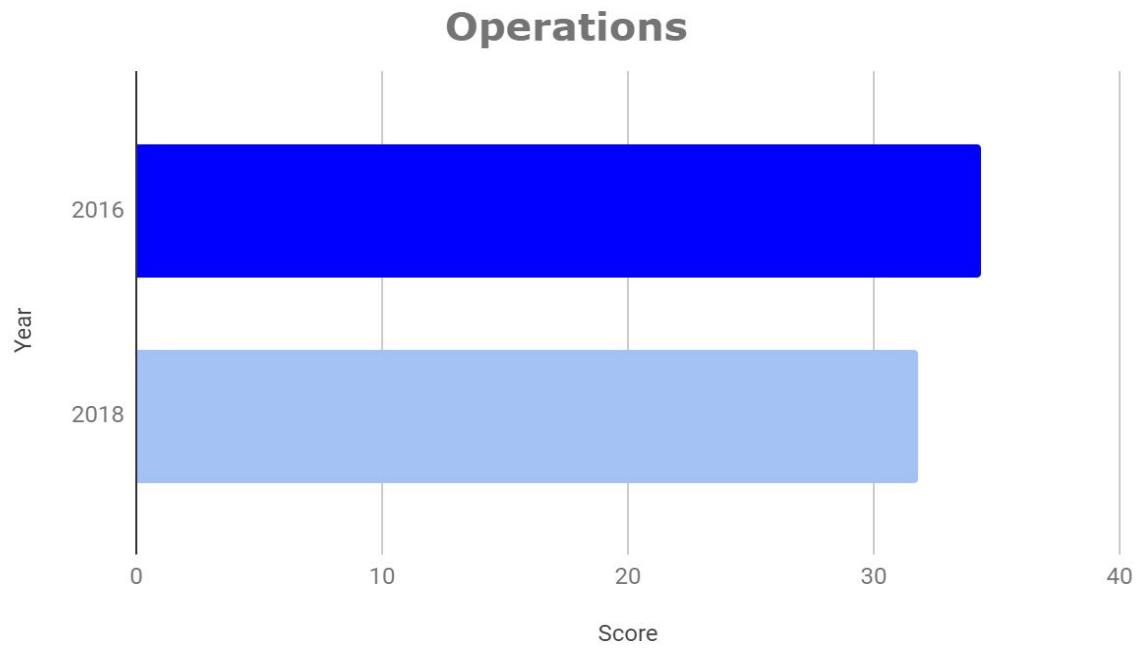



*Figure 7. A graph comparing the overall score received in the Operations category for the 2016 and 2018 STARS submissions.*

**Food & Dining:**

In the Food & Dining sub-category, there was a 2% decrease in the number of points that were scored. In 2016, SOU earned 2.30/8.00 points compared to 2.14/8.00 points in the 2018 report. Though it is not a significant decrease in points, it remains to be one of the lowest scoring credit categories in SOU's entire STARS report for both the 2016 and 2018 submissions. The main reason for this being that the score we have received for OP-7: Food and Beverage Purchasing has been less than 1.00/6.00, with a decrease in score seen between the 2016 and 2018 reports. In the other credit that makes up Food & Dining, OP-8: Sustainable Dining, we scored 1.75/2.00 in 2016, and then 1.88/2.00 in the 2018 report, so this is not necessarily a specific credit that needs a lot of attention.

Under the Food and Beverage Purchasing credit, quite a bit of information is required in order for an institution to obtain points and recognition. The first is that food and beverage purchases must be third party verified meaning that "the product is sustainably and/or ethically produced as determined by one of more recognized food and beverage sustainability standards" (AASHE). The second is that product purchases must be local and community based which means that "the product does not qualify as Third Party Verified, but meets the criteria outlined in Figure 4 below. This category provides a path for campus farms and gardens and small and mid-sized producers to be recognized in the absence of third party certification" (AASHE). The table mentioned is included below, and outlines criteria associated with Real Food Standards;

these standards help to ensure that food is local & community based, fair, ecologically sound, and humane (Real Food Challenge). Under this second part as well, is a call for the "minimization of purchase of conventional animal products, as measured by the percentage of total dining services food and beverage expenditures on such products" (AASHE).

In the most recent STARS report that was submitted, 4.82% of "dining services food and beverage expenditures on products that are third party verified under one or more recognized food and beverage sustainability standards or Local & Community Based" (AASHE), which is up 4.45% from the 2016 report. 45.45% of "total dining services food and beverage expenditures on conventional animal products (meat, poultry, fish/seafood, eggs, and dairy products that do not qualify in either the Third Party Verified or Local & Community-Based category) which is up 23.45% from the 2016 report; this significant increase in the percentage of meat products purchased on campus is most likely what led to the decrease in score for this credit. In fall 2018, "Southern Oregon University signed a Real Food Commitment, pledging to pursue 20% 'real food' by 2023" (SOU) which should hopefully contribute to sustainable dining and purchasing decisions made at SOU, which will then in turn have an effect on the overall score we receive for STARS.

Although Southern Oregon University is still only a Silver rated school, the goal is to obtain Gold. There are a total of 330 Gold Rated institutions that have participated in the STARS reporting process, and of those, only 57 have managed to attain a score of 3.00/8.00 in the overall Food & Dining category; this is 17% of the total schools. The institution to come closest to earning all 8 points in this credit is Sterling College in Vermont, who earned 6.96/8.00. They scored full points (2.00/2.00) on the Sustainable Dining credit, and 4.98/6.00 in the Food and Beverage Purchasing credit. A big contributor to their high score in OP-7: Food and Beverage Purchasing is that fact that 65% of their dining services food and beverage expenditures are third party verified, and only 7% of total dining services food and beverage expenditures are on conventional animal products. They claim to have "the most progressive food service of any college in the country" (AASHE) because they "grow a significant percentage of their own food, and source as much local food as possible" (AASHE). Sterling College does not use a food-service company, because instead they have chefs working with students to create healthy, creative, and delicious meals which also helps to uphold their school values. They have also implemented the Real Food Challenge on their campus with the goal of shifting $1 billion "of existing university food budget away from industrial farms and junk food and towards local/community-based, fair, ecologically sound and human food sources-what we call 'real food'- by 2020" (AASHE). On their campus, 43% of total dining services expenditures has been spent on Real Food. SOU has also recently signed onto the Real Food Challenge, "pledging to pursue 20% 'real food' by 2023" (SOU). For both the 2016 and 2018 STARS reports, no values were given for the percentage of total dining services expenditures spent on Real Food, so no comparison can be made as of yet.

To help increase our score in this category, as well as the overall sustainability at SOU, we must work towards incorporating more "Real Food" on campus. The chart included below outlines the criteria that must be met:

| | |
|---|---|
| Single-Ingredient Products | A single-ingredient product must meet ALL of the following criteria:<br><br>Ownership. Producer must be a privately or cooperatively owned enterprise. Wild-caught seafood must come from owner-operated boats.<br><br>Size. Produce: Gross annual sales for individual farms must not exceed $5 million (US/Canadian). Meat, poultry, eggs, dairy, fish/seafood, grocery/staple items (e.g., grains): Producing company's gross annual sales must not exceed $50 million (US/Canadian).<br><br>Distance. All production, processing, and distribution facilities must be within a 250 mile (400 kilometer) radius of the institution. This radius is extended to 500 miles (800 kilometers) for meat (i.e., beef, lamb, pork, game). |
| Single-Ingredient Products Aggregated From Multiple Sources (e.g., fluid milk) | At least 75 percent of the product (by volume) must meet the Ownership, Size, and Distance criteria outlined above. |
| Multi-Ingredient Products (e.g., baked goods) | Producing company must meet ALL of the following criteria:<br><br>Ownership. Company must be a privately or cooperatively owned enterprise.<br><br>Size. Company's gross annual sales must be less than or equal to $50 million (US/Canadian).<br><br>Distance. All processing and distribution facilities must be within a 250 mile (400 |

| | |
|---|---|
| | kilometer) radius of the institution.<br><br>AND<br><br>At least 50 percent of the ingredients must come from farms meeting the Ownership, Size, and Distance criteria for Single-Ingredient Products outlined above. |

*Figure 8. A chart outlining the criteria required for a product to be considered 'real food'.*

Another step that could be taken in this general direction to help increase overall sustainability and the STARS score at SOU, would be to decrease the percentage of total dining services food and beverage expenditures spent on conventional animal products, as well as increase the percentage of dining services food and beverage expenditures that are third party verified. The chart below outlines standards that must be met in order for a product to qualify for third party verification:

| Global Standards | U.S. and Canadian Standards |
|---|---|
| ● Biodynamic Certified (Demeter)<br>● Certified Bird Friendly (coffee)<br>● Certified Humane Raised and Handled<br>● Certified Organic under an IFOAMendorsed standard<br>● Certified Sustainably Grown (SCS)<br>● Fair Trade Certified<br>○ Ecocert Fair Trade certified (EFT)<br>○ Fair for Life and other IMO certifications<br>○ Fairtrade mark (Fairtrade International)<br>○ FairWild Certified<br>○ Hand in Hand certified (Rapunzel Fairtrade)<br>○ Small Producers' Symbol (SPP)<br>● Green List (i.e. "best choice") fish and seafood (WWF)<br>● LEAF Marque (Linking Environment and Farming)<br>● Marine Stewardship Council Blue Ecolabel (paired with MSC Chain of Custody certification)<br>● Participatory Guarantee Systems | ● AGACertified Grassfed<br>● American Humane Certified Free Range & Pasture (egg layers)<br>● American National Standard for Sustainable Agriculture (ANSI/LEO4000) Certified Gold or Platinum<br>● Animal Welfare Approved and AWA Grass Fed<br>● Certified Local Sustainable (Land Food People)<br>● Equitable Food Initiative certified (EFI)<br>● Fair Food Program (Fair Food Standards Council / Coalition of Immokalee Workers)<br>● Fair Trade Certified (Fair Trade USA)<br>● Food Alliance Certified<br>● Food Justice Certified (Agricultural Justice Project)<br>● Global Animal Partnership Certified (Steps 35+ only)<br>● Green List (i.e. "best choice") fish and seafood:<br>○ Monterey Bay Aquarium Seafood Watch |

| | |
|---|---|
| (IFOAM)<br>● Rainforest Alliance Certified (SAN Standard for Sustainable Agriculture)<br>● Local, national, and regional third party certifications that are consistent with IFOAM's Common Objectives and Requirements of Organic Standards (COROS) and/or standards set by ISEAL Alliance and/or Global Ecolabelling Network members | (U.S.)<br>○ Sea Choice (Canada)<br>● Milk with Dignity (Migrant Justice)<br>● PCO Certified 100% Grassfed<br>● Protected Harvest Certified<br>● Salmon Safe Certified<br>● Transitional Organic (USDA) |

*Figure 9. A chart outlining the criteria required for a product to qualify for third party verification.*

**Water:**

In the water category, there was a very slight increase seen between the scores earned in 2016 and 2018; in 2016, SOU received 1.00/6.00 compared to 1.08/6.00 that was received in 2018. Though there was a 1.33% increase seen between the scores, it is not nearly enough. There are two sub-categories within this section of the STARS report, and improvements can be made in each one. The first credit OP-22: Water Use, is where the most progress can be made; in 2016, a score of 0.00/6.00 was earned and in 2018 0.8/6.00 was earned. The second credit is OP-23: Rainwater Management where 1.00/2.00 was earned in 2016 and 2018; closing this smaller gap would prove to be beneficial for both sustainability at Southern Oregon University and its STARS score.

OP-22: Water Use is a credit that energy should be put towards, not just because of its very low score, but also because we have proven to be a very water intensive campus and closing this gap will help to reduce water waste. Each value given within this credit is compared to a "Baseline Year" to see what changes have occurred since; for SOU, the "baseline Fiscal Year of 2005 was selected because it was the first year that we had reliable records on file" (SOU). Three sets of criteria play into this credit: Part 1 says that the "institution has reduced its potable water use per weighted campus user compared to the baseline" (AASHE); Part 2 says that the "institution has reduced its potable water use per gross square foot/meter of floor area compared to a baseline" (AASHE); Part 3 says that the "institution has reduced its total water use (potable + non-potable) per acre/hectare of vegetated grounds compared to a baseline" (AASHE). STARS defines potable water as "the water that meets local and/or national standards governing drinking water" whereas non-potable water is water that does not meet those same standards. Additionally, STARS characterizes a weighted campus user as "a measurement of an institution's population that is adjusted to accommodate how intensively certain community members use the campus" (STARS). This definition helps to differentiate between various

population groups that utilize resources on campus. To determine the number of weighted campus users, there are six figures required, and can be seen in the table below:

| Southern Oregon University | Performance Year | Baseline Year |
|---|---|---|
| Number of Students Resident On-Site | 1068 | 1008 |
| Number of Employees Resident On-Site | 2 | 0 |
| Number of Other Individuals Resident On-Site | 0 | 0 |
| Total Full-Time Equivalent Student Enrollment | 4200 | 3913.80 |
| Full-Time Equivalent of Employees (staff+faculty) | 684 | 635 |
| Full-Time Equivalent of Students Enrolled Exclusively in Distance Education | 191 | 22.50 |
| Weighted Campus Users | 3787.25 | 3646.73 |

*Figure 10. A chart outlining the variables looked at when determining weighted campus users.*

In Part 1 of the criteria, maximum points are earned by "achieving a 30% or larger reduction in potable water use per weighted campus user compared to a baseline" (STARS). Potable water use and weighted campus users information for both the performance and baseline years are utilized and factored into the equation to determine points for this credit:

Points Earned = [ E / 0.3 ] x { [ (A/B) - (C/D) ] / (A/B) }

A = Potable water use, baseline year (US gallons/cubic meters)
B = Weighted campus users, baseline year
C= Potable water use, performance year (US gallons/cubic meters)
D= Weighted campus users, performance year
E = Points available for Part 1

If both the number of weighted campus users and amount of potable water used go up each year, no water is being saved and thus no reduction will be seen, which will result in no points being earned for this credit. A water reduction plan must be implemented to save water, because the number of students that attend Southern Oregon University will only continue to increase.

In Part 2 of the criteria, maximum points are available "by achieving a 30% or larger reduction in potable water use per gross square foot/meter of floor area compared to a baseline" (STARS). A similar equation is used for this section, in that potable water use and weighted campus user information for both the baseline and performance years are utilized and factored in to determine points for this credit:

Points Earned = [ E / 0.3 ] x { [ (A/B) - (C/D) ] / (A/B) }

A = Potable water use, baseline year (US gallons/cubic meters)
B = Building space, baseline year (square feet/meters)
C= Potable water use, performance year (US gallons/cubic meters)
D= Building space, performance year (square feet/meters)
E = Points available for Part 2

Examples of water reduction plans that have potential for implementation on SOU's campus include bioretention ponds, rain gardens, bioswales, sand filters, pervious pavement, green roofs, rain barrels, and rainwater dispersion. These low impact development (LID) practices are ways to help divert (and capture) storm/rainwater from running onto pervious surfaces (such as pavement, streets, sidewalks, etc.) and into more vegetated areas. The chart below outlines various costs associated with implementing LID practices versus conventional practices:

Cost Comparison for Tellabs Corporate Campus

| Item | Conventional Development Cost | LID Cost | Cost Savings | % Savings | % Total Savings |
|---|---|---|---|---|---|
| Site Preparation | $2,178,500 | $1,966,000 | $212,500 | 10% | 46% |
| Stormwater Management | $480,910 | $418,000 | $62,910 | 13% | 14% |

| | | | | | |
|---|---|---|---|---|---|
| Landscape Development | $502,750 | $316,650 | $186,100 | 37% | 40% |
| Total | $3,162,160 | $2,700,650 | $461,510 | - | - |

*Figure 11. A chart comparing costs of conventional versus low-impact development practices for stormwater management; "Green Infrastructure in Washtenaw County, Huron River Watershed Council"*

The numbers above provide some insight when it comes to costs associated with conventional versus low impact developments practices with regards to site preparation, stormwater management, and landscape development. In areas that are heavily developed (like a college campus), there are going to be an increased number of pervious areas where water is likely to runoff into storm drains and thus be 'wasted'. Since the criteria that credit OP-22: Water Use primarily looks for to determine scoring is the amount of potable water that is used per weighted campus user, reducing this number would be the most efficient way to not only save water but also improve our score in this category. On the Southern Oregon University campus, the most realistic scenario for implementation of LID practices would likely involve implementation in future renovations and projects on campus, versus updating current systems that are in place on campus now.

## Conclusion:

After a thorough analysis of both the 2016 and 2018 STARS reports, the main takeaway is that there is potential for improvement in all aspects of sustainability on the Southern Oregon University campus; yes, there are some categories that have more room for development than others (as can be seen in the chart below), but overall, SOU has much room to grow as a sustainable institution.

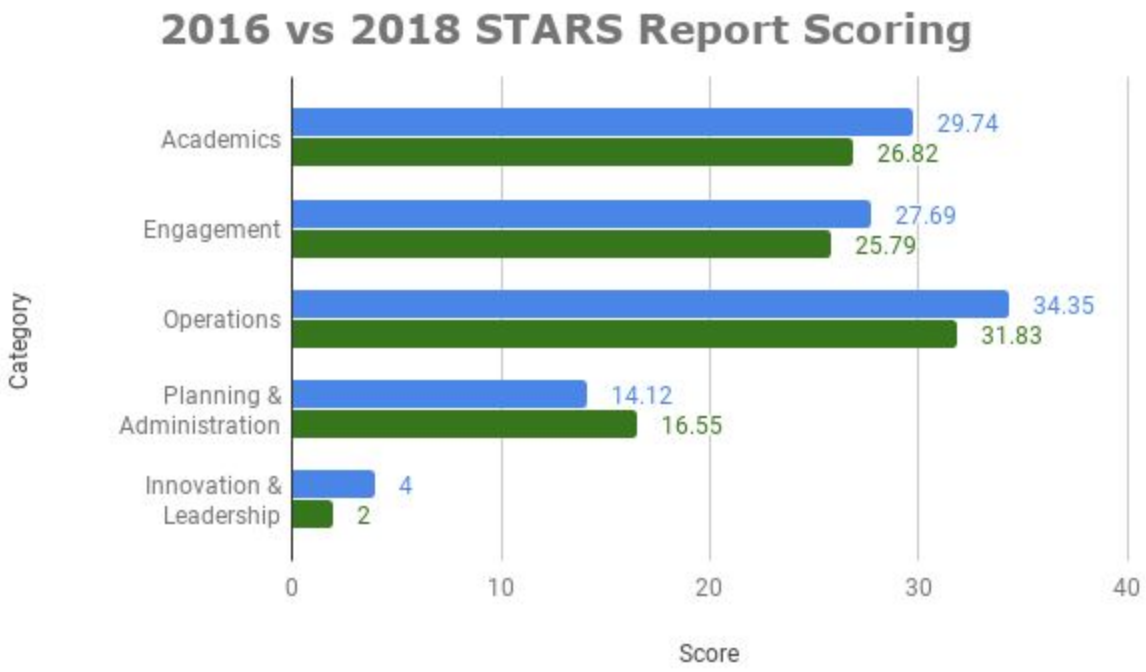



*Figure 12. A chart comparing the overall scores for each STARS category from 2016 and 2018.*

In green are the scores received for the various categories in the most recent 2018 report that we submitted, and in the blue are the scores we received in the 2016 report. Each category saw a decrease, with the exception of Planning & Administration. These decreases and increases occurred for different reasons; these included increased water usage on campus, increased spending on animal products, deficient number of sustainability focused courses, and lack of sustainable investing (among others).

**Limitations:**

Initially, the proposal I had put forth for this project had included the analysis of more sub-categories within the Operations section, in addition to a cost-benefit analysis for the suggested projects to be implemented on campus for each section. Due to limitations on time, I was not able to include these in my final report. In the future, I would either recruit another student to assist with the project, I would begin my analysis sooner, or I would refine the number of variables being looked at for the analysis. Seeing as this project is one that has not been done before at SOU, it is one that can easily be built upon, and expanded, in the future. Each credit can be continually examined and researched to determine more ways that it can be improved at SOU, in addition to further research done with regards to the costs and benefits associated with each credit. If given more time, I would undoubtedly have a much more detailed, and laid out, analysis with more specific values and project proposals.

**Discussion:**

| Feasible | In-Between | Impractical |
|---|---|---|
| AC-2: Learning Outcomes | AC-7: Incentives for Developing Courses | PA-9: Sustainable Investment |
| AC-6: Sustainability Literacy Assessment | AC-11: Open Access to Research | OP-7: Food and Beverage Purchasing |
| EN-6: Assessing Sustainability Culture | EN-7: Employee Educators Program | |
| IN-1: Sustainability Course Designation | EN-12: Continuing Education | |
| IN-16: Campus Water Balance | EN-15: Trademark Licensing | |
| IN-20: Pay Scale Equity | IN-15: Stormwater Modeling | |

*Figure 13. A table outlining the various proposed projects and practices for the Southern Oregon University campus, categorized by feasibility.*

The chart above outlines every credit that was discussed within the STARS analysis above, has designated it according to its feasibility for implementation on campus, and also color coded according to whether SOU has attempted to pursue it within STARS or not. The first category is "feasible", meaning the credits and projects listed are "possible to do easily or conveniently" (Google dictionary) in a reasonable amount of time with little or no cost associated with them. The second category is "in-between", meaning the credits and projects listed are "situated somewhere between two extremes or recognized categories" (Google dictionary); the credits that have been placed in this section would take a moderate amount of time to implement, and would require some resource assistance, but would otherwise be achievable. The third category is "impractical", meaning the credits and projects listed are "not adapted for use or action" or are "not sensible or realistic" (Google dictionary), meaning that many changes would need to be made at the systemic level within Southern Oregon University. This does not mean that the implementation of these credits and/or projects are impossible, but rather that they would take a substantial amount of time and/or resources, much follow up, and persistence.

The credits colored red are ones that are designated in the STARS report as 'not pursued', whereas the credits colored green are ones that have been designated as 'pursued' but have received low overall scores. This can be attributed to the fact that whatever programs or infrastructure that is already in place is insufficient for what is needed to increase the score in that category. The color coding can help bring attention to projects and practices that have already been implemented on the SOU campus, and ones that have potential to be; from the

credits listed, decisions can be made with regard to which credits (and associated projects) will be pursued and put into action. An example of this can be seen within the PA-9: Sustainable Investment credit; SOU was able to mark it as one that was being 'pursued' because the institution has a pool of money that it draws from to make investments, but received 0.00/4.00 points because none of the investments made were in a sustainable industry.

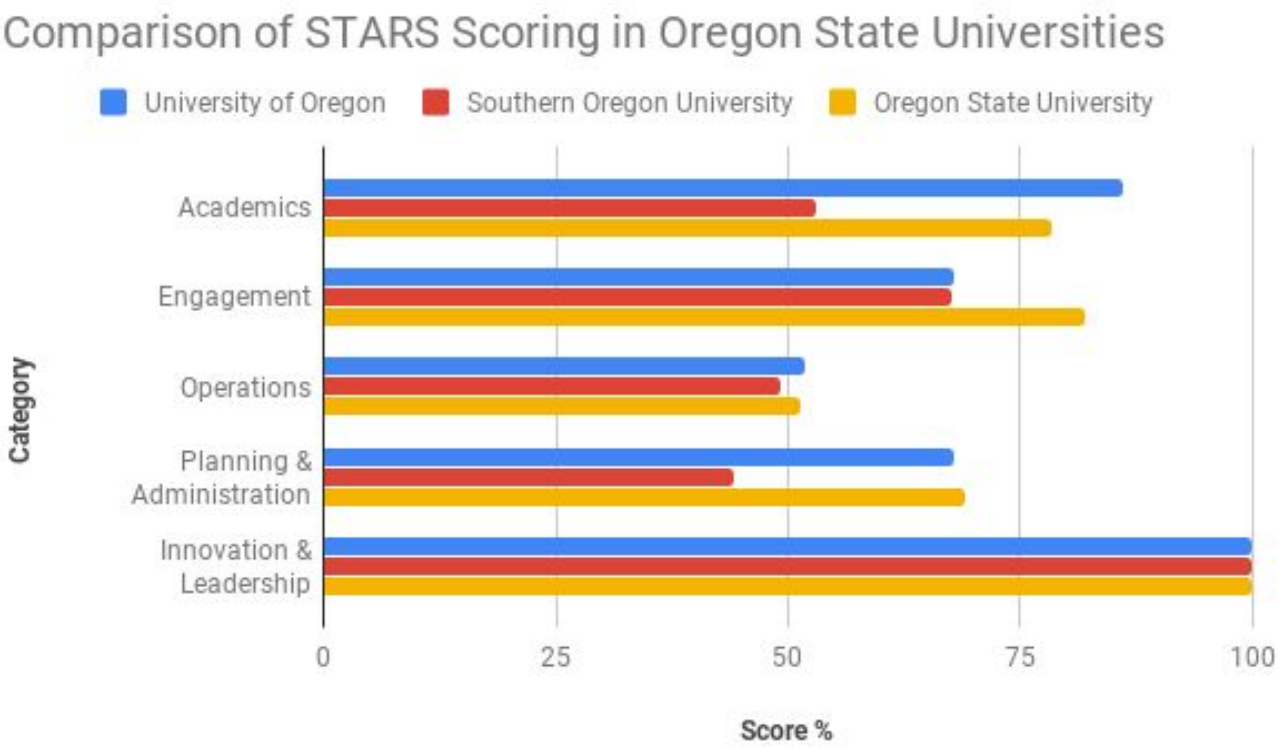
All of the credits discussed throughout this analysis have the potential to not only benefit the SOU campus, student body, and community, but they are likely to increase our overall STARS score as well. The implementation of these projects provides the university with the opportunity for school-wide change and the proficiency with which to provide further understanding surrounding sustainability, the environment, food and beverage purchasing, water use, education, and resource availability for students, staff, faculty, and even the community. As SOU strives to continue its effort towards becoming more sustainable, the possibility for further student interest increases as well.

The hope is that students interested in sustainability, and schools that are making conscious efforts to be more sustainable, will be drawn to Southern Oregon University. The implementation of these credits and projects would not only hold the potential to attract more students, but could also further garner the attention of environmental and institutional groups, such as the Sierra Club and the Princeton Review. Both of these groups select top sustainable institutions in the United States and feature them in their various publications; the Sierra Club hopes their "annual ranking can serve as a guide for prospective students, current students, administrators, and alumni to compare colleges' commitments to environmentalism. It also serves to spur healthy competition among schools, raise environmental standards on campus, and publicly reward institutions that work hard to protect the planet" (Sierra Club, 2016).

It is my goal that this initial STARS analysis helps to lead to further sustainable efforts at Southern Oregon University. Sustainability and environmental awareness will only continue to become more necessary, so if SOU is able to set an example for its community and other institutions, then we can work to establish green campuses as things that are normalized rather than praised as being the exception.

**Appendices:**

STARS Scoring Comparison of Universities in Oregon:

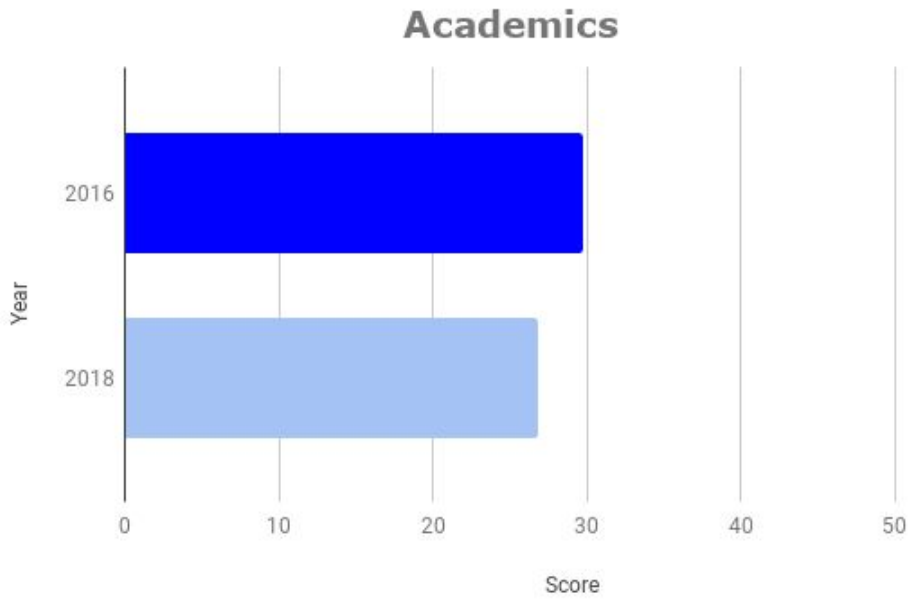


# Sustainability Scores Reporting Spreadsheet

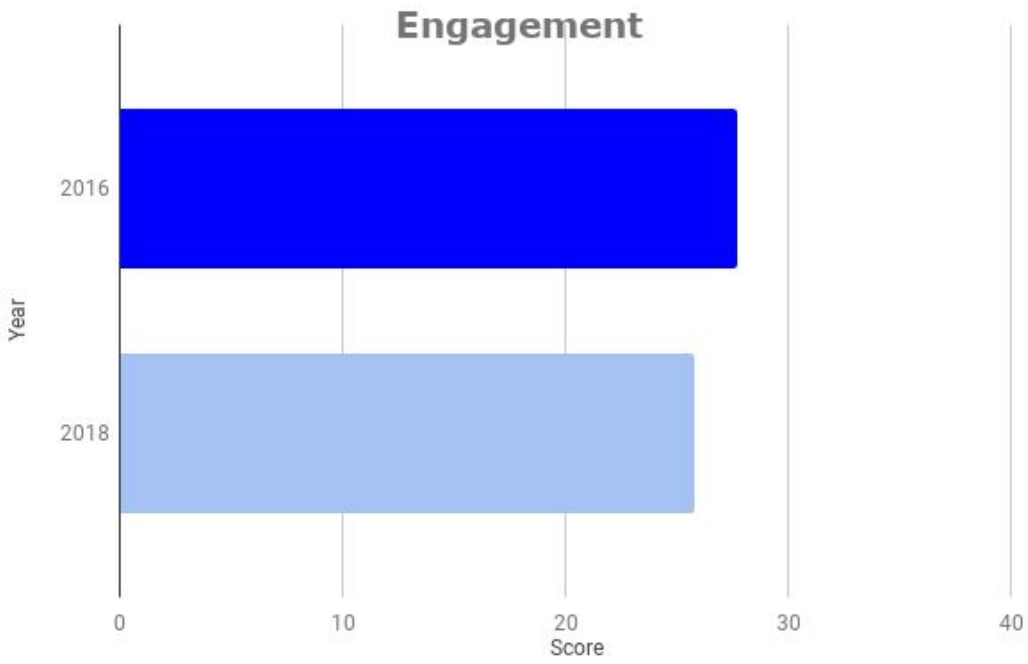
| | Possible Points | FY 16 Score | FY 16 % | % Change | STARS Version 2.1 Category Name | Possible Points | FY 18 Score | FY 18 % |
|---|---|---|---|---|---|---|---|---|
| Academics | 58 | 29.74 | 51.28% | -5.04% | Academics | 58 | 26.82 | 46.24% |
| Engagement | 41 | 27.69 | 67.54% | -4.64% | Engagement | 41 | 25.79 | 62.90% |
| Operations | 70 | 34.35 | 49.07% | -3.60% | Operations | 70 | 31.83 | 45.47% |
| Planning & Administration | 32 | 14.12 | 44.13% | -6.54 | Planning & Administration | 32 | 12.03 | 37.59% |
| Innovation & Leadership | 6.5 | 4 | N/A | | Innovation & Leadership | 6.5 | 2 | N/A |
| **Overall Score** | | **57.22** | | 5.72 | **Overall Score** | | **51.5** | |

| STARS Version 2.1 Sub-Category Name | Possible Points | FY 16 Score | FY 16 % | | STARS Version 2.1 Sub-Category Name | Possible Points | FY 18 Score | FY 18 % |
|---|---|---|---|---|---|---|---|---|
| Curriculum | 40 | 19.27 | 48.18% | 8.87% | Curriculum | 40 | 22.82 | 57.05% |
| Research | 18 | 10.47 | 58.17% | -7.67% | Research | 18 | 9.09 | 50.50% |
| **Campus Engagement** | **21** | **16.25** | **77.38%** | 0 | **Campus Engagement** | **21** | **16.25** | **77.38%** |
| Public Engagement | 20 | 11.44 | 57.20% | -9.50% | Public Engagement | 20 | 9.54 | 47.70% |
| Air & Climate | 11 | 5.37 | 48.82% | 1.82% | Air & Climate | 11 | 5.57 | 50.64% |
| Buildings | 8 | 2.72 | 34.00% | -21% | Buildings | 8 | 1.04 | 13.00% |
| Energy | 10 | 5.86 | 58.60% | -8.70% | Energy | 10 | 4.99 | 49.90% |
| **Food & Dining** | **8** | **2.3** | **28.75%** | -2% | **Food & Dining** | **8** | **2.14** | **26.75%** |
| **Grounds** | **4** | **3.8** | **95.00%** | 0 | **Grounds** | **4** | **3.8** | **95.00%** |
| **Purchasing** | **6** | **4.36** | **72.67%** | -1% | **Purchasing** | **6** | **4.3** | **71.67%** |
| Transportation | 7 | 4.23 | 60.43% | 2.14% | Transportation | 7 | 4.38 | 62.57% |
| Waste | 10 | 4.71 | 47.10% | -1.80% | Waste | 10 | 4.53 | 45.30% |
| **Water** | **6** | **1** | **16.67%** | 1.33% | **Water** | **6** | **1.08** | **18.00%** |
| Coordination & Planning | 8 | 5.25 | 65.63% | -3.13% | Coordination & Planning | 8 | 5 | 62.50% |
| Diversity & Affordability | 10 | 7 | 70.00% | -10.90% | Diversity & Affordability | 10 | 8.09 | 80.90% |
| **Investment & Finance** | **7** | **0** | **0.00%** | 0 | **Investment & Finance** | **7** | **0** | **0.00%** |
| **Wellbeing & Work** | **7** | **1.87** | **26.71%** | 22.72% | **Wellbeing & Work** | **7** | **3.46** | **49.43%** |
| Exemplary Practice | N/A | 1.5 | N/A | | Exemplary Practice | N/A | 1.5 | N/A |
| Innovation | N/A | 4 | N/A | | Innovation | N/A | 2 | N/A |

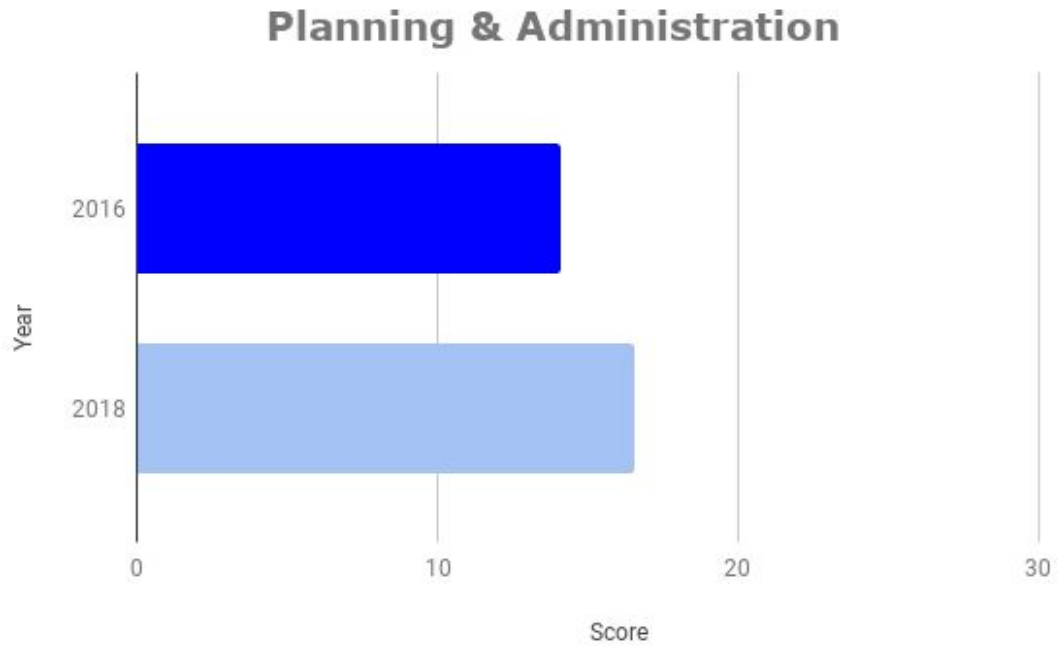
STARS Scoring in the Academics Category:



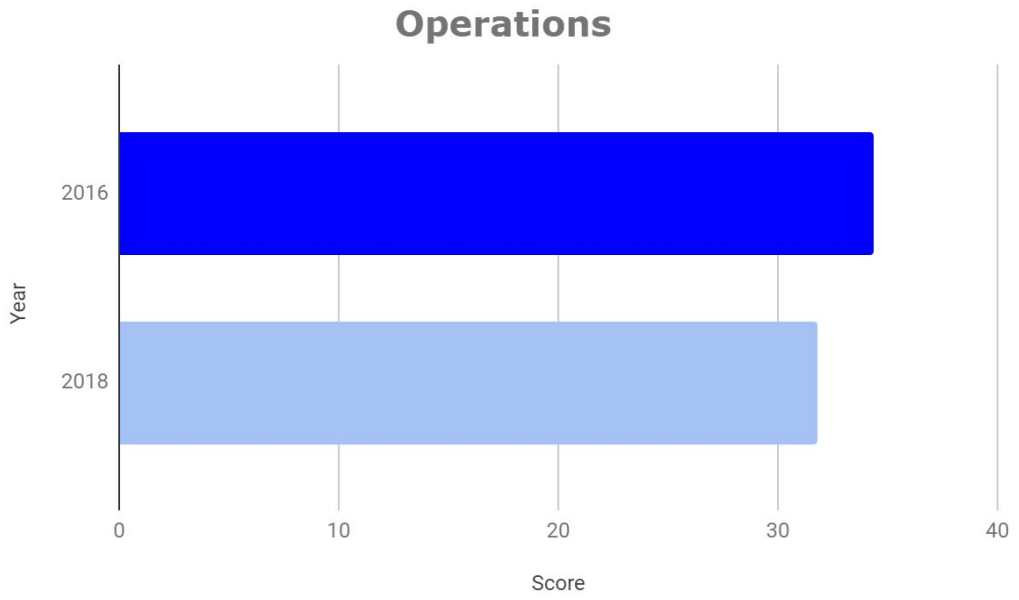

STARS Scoring in the Engagement Category:




STARS Scoring in the Planning & Administration Category:




STARS Scoring in the Operations Category:




Sustainable Investment Table:

| Southern Oregon University | University of Ireland Value of Holding | Category |
|---|---|---|
| $27,468,015 | $17,905,136 | Total value of investment pool |
| | | Sustainable industries (e.g. renewable energy or sustainable forestry) |
| | | Businesses selected for exemplary sustainability performance (e.g. using criteria specified in a sustainable investment policy) |
| | $355,9208 | Sustainability investment funds (e.g. a renewable energy or impact investment fund) |
| | | Community development financial institutions (CDFIs) or the equivalent |
| | $944,4478 | Socially responsible mutual funds with positive screens (or the |

| | | |
|---|---|---|
| | | equivalent) |
| | | Green revolving loan funds that are funded from the endowment |
| Currently, all of SOU's and the SOU Foundation's investments are held in mutual funds. Each mutual fund is comprised of many different companies. As a whole, each fund does not meet the citeria for either option 1 or 2. There may be individual companies within the fund that do, but there is no way to identify those individual companies. | Investments include forestry funds, ethical global equity fund, Irish energy efficiency fund, and renewable energy funds | A brief description of the companies, funds, and/or institutions referenced above: |
| | 73% | Percentage of the institution's investment pool in positive sustainability investments: |
| | Yes | Does the institution have a publicly available sustainable investment policy?: |

*Data from The Association for the Advancement Sustainability in Higher Education (AAASHE)*

## Comparison of LID vs Conventional Stormwater Management:

**Sample Costs: Comparing Conventional Stormwater Controls with LID Techniques in a Corporate Development (Tellabs) in Naperville, Illinois**

| Construction Item | Cost of Conventional Development | Cost When Using LID Practices | Dollars Saved with LID |
|---|---|---|---|
| Site preparation | $2,178,500 | $1,966,000 | $212,500 |
| Stormwater management | $480,910 | $418,000 | $62,910 |
| Landscape development | $502,750 | $316,650 | $186,100 |
| **Total** | **$3,162,160** | **$2,700,650** | **$461,510** |

*Michael Albanese with the Burlington Green Environmental Association, 2016*

Criteria for Local & Community Based Products:

| | |
|---|---|
| Single-Ingredient Products | A single-ingredient product must meet ALL of the following criteria:<br><br>1. Ownership. Producer must be a privately or cooperatively owned enterprise. Wild-caught seafood must come from owner-operated boats.<br><br>2. Size. Produce: Gross annual sales for individual farms must not exceed $5 million (US/Canadian). Meat, poultry, eggs, dairy, fish/seafood, grocery/staple items (e.g., grains): Producing company's gross annual sales must not exceed $50 million (US/Canadian).<br><br>3. Distance. All production, processing, and distribution facilities must be within a 250 mile (400 kilometre) radius of the institution. This radius is extended to 500 miles (800 kilometres) for meat (i.e., beef, lamb, pork, game). |
| Single-Ingredient Products Aggregated From Multiple Sources (e.g., fluid milk) | At least 75 percent of the product (by volume) must meet the Ownership, Size, and Distance criteria outlined above. |
| Multi-Ingredient Products (e.g., baked goods) | Producing company must meet ALL of the following criteria:<br><br>1. Ownership. Company must be a privately or cooperatively owned enterprise.<br><br>2. Size. Company's gross annual sales must be less than or equal to $50 million (US/Canadian).<br><br>3. Distance. All processing and distribution facilities must be within a 250 mile (400 kilometre) radius of the institution.<br><br>AND<br><br>At least 50 percent of the ingredients must come from farms meeting the Ownership, Size, and Distance criteria for Single-Ingredient Products outlined above. |

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

Criteria for "Real Food" Products:

| | |
|---|---|
| Single Ingredient Product | A single-ingredient product must meet ALL of the following criteria:<br><br>Ownership. Producer must be a privately or cooperatively owned enterprise. Wild-caught seafood must come from owner-operated boats.<br><br>Size. Produce: Gross annual sales for individual farms must not exceed $5 million (US/Canadian). Meat, poultry, eggs, dairy, fish/seafood, grocery/staple items (e.g., grains): Producing company's gross annual sales must not exceed $50 million (US/Canadian).<br><br>Distance. All production, processing, and distribution facilities must be within a 250 mile (400 kilometer) radius of the institution. This radius is extended to 500 miles (800 kilometers) for meat (i.e., beef, lamb, pork, game). |
| Single-Ingredient Products Aggregated From Multiple Sources (e.g., fluid milk) | At least 75 percent of the product (by volume) must meet the Ownership, Size, and Distance criteria outlined above. |
| Multi-Ingredient Products (e.g., baked goods) | Producing company must meet ALL of the following criteria:<br><br>Ownership. Company must be a privately or cooperatively owned enterprise.<br><br>Size. Company's gross annual sales must be less than or equal to $50 million (US/Canadian).<br><br>Distance. All processing and distribution facilities must be within a 250 mile (400 kilometer) radius of the institution.<br><br>AND |

At least 50 percent of the ingredients must come from farms meeting the Ownership, Size, and Distance criteria for Single-Ingredient Products outlined above

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

## Criteria for Third Party Verification:

Global Standards

- Biodynamic Certified (Demeter)
- Certified Bird Friendly (coffee)
- Certified Humane Raised and Handled
- Certified Organic under an IFOAMendorsed standard
- Certified Sustainably Grown (SCS)
- Fair Trade Certified
  - Ecocert Fair Trade certified (EFT)
  - Fair for Life and other IMO certifications
  - Fairtrade mark (Fairtrade International)
  - FairWild Certified
  - Hand in Hand certified (Rapunzel Fairtrade)
  - Small Producers' Symbol (SPP)
- Green List (i.e. "best choice") fish and seafood (WWF)
- LEAF Marque (Linking Environment and Farming)
- Marine Stewardship Council Blue Ecolabel (paired with MSC Chain of Custody certification)
- Participatory Guarantee Systems (IFOAM)
- Rainforest Alliance Certified (SAN Standard for Sustainable Agriculture)
- Local, national, and regional third party

U.S. and Canadian Standards

- AGACertified Grassfed
- American Humane Certified Free Range & Pasture (egg layers)
- American National Standard for Sustainable Agriculture (ANSI/LEO4000) Certified Gold or Platinum
- Animal Welfare Approved and AWA Grass Fed
- Certified Local Sustainable (Land Food People)
- Equitable Food Initiative certified (EFI)
- Fair Food Program (Fair Food Standards Council / Coalition of Immokalee Workers)
- Fair Trade Certified (Fair Trade USA)
- Food Alliance Certified
- Food Justice Certified (Agricultural Justice Project)
- Global Animal Partnership Certified (Steps 35+ only)
- Green List (i.e. "best choice") fish and seafood:
  - Monterey Bay Aquarium Seafood Watch (U.S.)
  - Sea Choice (Canada)
- Milk with Dignity (Migrant Justice)
- PCO Certified 100% Grassfed

| | |
|---|---|
| certifications that are consistent with IFOAM's Common Objectives and Requirements of Organic Standards (COROS) and/or standards set by ISEAL Alliance and/or Global Ecolabelling Network members | ● Protected Harvest Certified<br>● Salmon Safe Certified<br>● Transitional Organic (USDA) |

*The Association for the Advancement of Sustainability in Higher Education (AAASHE)*

## Criteria to Determine "Weighted Campus Users":

| | Performance Year | Baseline Year |
|---|---|---|
| Number of Students Resident On-Site | 1068 | 1008 |
| Number of Employees Resident On-Site | 2 | 0 |
| Number of Other Individuals Resident On-Site | 0 | 0 |
| Total Full-Time Equivalent Student Enrollment | 4200 | 3913.80 |
| Full-Time Equivalent of Employees (staff+faculty) | 684 | 635 |
| Full-Time Equivalent of Students Enrolled Exclusively in Distance Education | 191 | 22.50 |
| Weighted Campus Users | 3787.25 | 3646.73 |

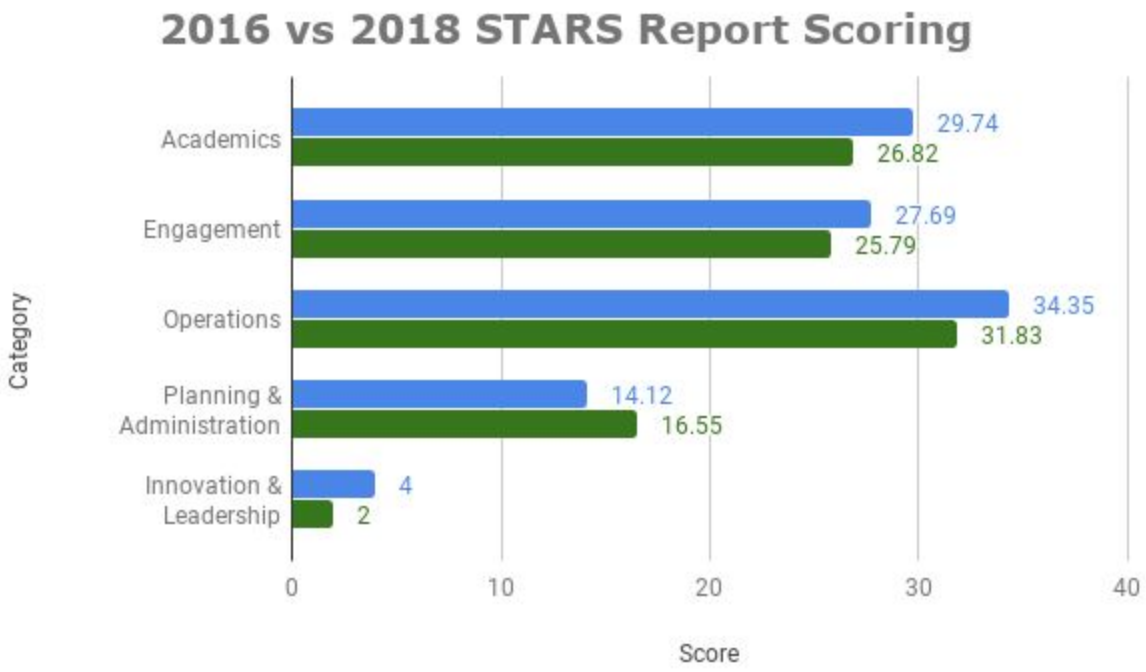
*The Association for the Advancement of Sustainability in Higher Education (AASHE)*

Cost Comparison for Tellabs Corporate Campus

| Item | Conventional Development Cost | LID Cost | Cost Savings | % Savings | % Total Savings |
|---|---|---|---|---|---|
| Site Preparation | $2,178,500 | $1,966,000 | $212,500 | 10% | 46% |
| Stormwater Management | $480,910 | $418,000 | $62,910 | 13% | 14% |
| Landscape Development | $502,750 | $316,650 | $186,100 | 37% | 40% |
| Total | $3,162,160 | $2,700,650 | $461,510 | - | - |

*"Green Infrastructure in Washtenaw County, Huron River Watershed Council"*

2016 vs 2018 STARS Reports for SOU:




Categorization of STARS Credits Based on Feasibility

| **Feasible** | **In-Between** | **Impractical** |
|---|---|---|
| AC-2: Learning Outcomes | AC-7: Incentives for Developing Courses | PA-9: Sustainable Investment |
| AC-6: Sustainability Literacy Assessment | AC-11: Open Access to Research | OP-7: Food and Beverage Purchasing |
| EN-6: Assessing Sustainability Culture | EN-7: Employee Educators Program | |
| IN-1: Sustainability Course Designation | EN-12: Continuing Education | |
| IN-16: Campus Water Balance | EN-15: Trademark Licensing | |
| IN-20: Pay Scale Equity | IN-15: Stormwater Modeling | |

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