Sustainability

Assessment Report – AY 2020-21

June 2021

I. Program Assessment Meetings

Since the latest revision of the Sustainability major was approved in Spring 2020, the sustainability faculty did not meet regularly to discuss additional updates to the major. We felt we needed to await data on academic performance under the new major scheme.

However, on October 6, 2020, core sustainability faculty Laura McClusky, Ernie Olson, and Marian Brown met, along with Erinn Ryen from the Sustainable Business minor program, to discuss proposing a full-time Sustainability faculty position. This proposal was accepted as a 2-year visiting assistant professor, so the committee continued to meet to discuss advertisement, evaluation criteria and rubrics. This spring, the faculty search committee (which also now includes Professor Patti Goebel) has met regularly to evaluate applications from interested candidates (meeting dates: 3/10/21, 4/6/21, 4/20/2021, 5/4/2021, 5/20/21, and 6/1/2021). The expectation is that this faculty line will develop and deliver interesting new sustainability-focused courses, with transdisciplinary content being of key interest.

The committee members did at various times discuss during the year our concern about how to continue to offer Economics courses in the major given the Program Prioritization recommendation to discontinue the Economics and Management major. This concern was magnified with the confirmation of the planned Spring 2021 retirement of Kent Klitgaard, who contributes all of the economics courses to our major except the elective *Principles of Macroeconomics* course. We are watching for candidates in the Sustainability faculty search process who might possibly handle some of this coursework in the future. Barring that possibility, we need to engage in discussions with the Business program about possibility developing appropriate coursework, or working with senior academic leaders to support adjunct lecturers in this content area.

Committee members also contributed feedback about desired sustainability-related courses in Philosophy, which are not currently included in the major electives but could greatly benefit our program. Two courses in particular are listed in the course catalog, but have not been taught in many years (PHIL 240 *Ethics, Equality and Justice* and {PHIL 340 *Ethics and the Environment*). Again, this may be an opportunity for course delivery by the new Sustainability faculty position – this remains to be seen.

II. Closing the Loop

Program Mission Statement - *The Sustainability major allows students to examine the environment as a physical, social, economic, cultural and psychological entity that humans have imperiled. From both a global and a local perspective, we provide students with the knowledge and skills to understand the origins of the problems the environment faces, we direct them to thinking about multi-faceted solutions, and we help them to develop possible personal and societal adaptations to a changing world.*

1. **Changes to the Sustainability major academic program.** As noted in our Sustainability Program Assessment for 2019-20, in the Sustainability major revision approved in Spring 2020, a number of significant changes were made to make the program more inclusive of newer related courses added to the catalog as well as changes to existing courses (e.g. INTL 350) and deletions of a course no longer offered (WGS 385).

Changes approved to the **Sustainability major** during the Spring 2020 revision include:

- Delete MATH 151 *Elementary Statistics* as a requirement (and not included as an elective)
- Include ANTH 231 / SUS 231 *Culture and Water* as a major requirement
- Cross-list PSY 335 and SUS 335 *Psychology of Sustainability* and continue this course as a major requirement
- Delete WGS 385 Topics: *Gender, Environment, and Sustainability* as an elective as the course was not offered for several years
- Change INTL 350 *Comparative Environmental Policy Analysis* to POLS 213 *Sustainability and Comparative Environmental Policy*, per International Programs combination with Political Science and specific course description change approved in 2020; continue as an elective
- Cross-list FNIS 285 and SUS 285 Topics: *Indigenous Environmental Activism and Resistance* and include as an elective

Note: future SUS major sheets should be amended to reflect ANTH 270 *The Anthropology of Food* title change to ANTH 270 *Anthropology and Food Studies* – this course title change was approved in Spring 2021.

2. **We wish to increase the number of courses listed (or cross-listed) as Sustainability courses.** To that end, the following courses were approved this year as cross-listed courses:

SUS 335 / PSY 335 *Psychology of Sustainability* (requirement)
FNIS 285 / SUS 2885 Topics: *Indigenous Environmental Activism and Resistance* (elective)
ANTH 230 / SUS 230 *Culture and Water* (requirement)

3. **Adjustment of academic success criteria for SUS courses**. As noted in our 2019-2020 Sustainability Program Assessment, our academic goal of 100% performance at C or above for the two foundational required courses (SUS 101 *Introduction to Sustainability and SUS 195 Critical Thinking about Sustainability*) was ambitious, but simply not realistic as these two courses are open to – and mostly enrolled by - non-majors in fulfillment of *General Education* requirements. For 2020-21, because most of the major coursework is supplied by other academic programs, for both SUS 101 and SUS 195, we incorporated the success criteria measure of 70% of students achieving a C or higher, established for those programs (Economics, Biology, and Environmental Studies). We modified the success criteria for other upper-level Sustainability courses (FNIS 285/SUS 285, SUS 335 / PSY 335, and SUS 401, ANTH 231/SUS 231, and other Social Sciences elective courses) to that of 80% of students scoring at or above C level; 60% at or above B level; 30% at A level.

● Examining the data gathered to evaluate these changes

The changes noted above were incorporated in the ***2020-21 Sustainability Major Course Academic Performance*** spreadsheet (see **Enclosure 1**).

Overall academic performance was much improved with these more realistic, adjusted standards. The only courses in the Sustainability major that did not meet academic performance standards included:

Required courses:

All required courses offered in 2020-21 met the academic standards.

Elective courses:

BIOL 119L *Ecology and Evolution* – did not meet the 70% at C level threshold.
ECON 101 *Principles of Macroeconomics* – 1 out of 2 deliveries did not meet the 70% at C level threshold.
POLS 213 *Sustainability and Comparative Environmental Policy* – did not meet all success criteria

- **How to move forward: do these changes need further development? Are they accomplishing what you'd hoped?**

Because the Sustainability major has relatively few "purpose-built" courses and is comprised primarily of courses contributed by faculty in other disciplines, it is still not clear whether there is sufficient integration between content addressing the three domains in all required and elective courses. It is also not clear if there is sufficient scaffolding of content among these disparate contributing programs such that mastery in all areas is achieved. We need to work with faculty contributing coursework to gain a better understanding of whether/how deeply they incorporate sustainability content in their courses and if there are opportunities to strengthen student knowledge and skill development these areas.

Referring to the **2021 Curriculum Map** of the current Sustainability major courses (see **Enclosure 2**), the concern arises that the economics courses provided by now-retired professor Kent Klitgaard provided much of the senior-level (3) mastery of content in a number of other areas beyond economics. Without those courses, we need to devise ways to encourage faculty in other content areas (e.g. natural science courses and some social science courses) to include content in those other areas at deeper levels.

There has been inconsistent performance in basic economics courses, in particular (ECON 101 and ECON 102) in past years. This year, only one delivery of ECON 101 *Principles of Macroeconomics* met the success criterion of 70% at C or better. Both the Fall and Spring rounds of the major requirement ECON 102 *Principles of Microeconomics* did meet this success threshold this year. Because of this inconsistency, fewer sustainability majors – or students at all - tend to take upper division economics courses that would provide them with the mastery of this content area. ECON 255 *Political Economy of Globalization* was offered in Spring 2021, but did not garner sufficient enrollment to be delivered. ECON 325 *Ecological Economics* and ECON 326 *Energy and the Economy* both "ran" this year, but with minimal enrollments (ECON 325: 4 and Econ 326: 3). With the discontinuance of Economics as a major program this year, it is not at all clear whether or how any of the upper division ECON classes with clear sustainability content will be offered in future.

We still could benefit from content in the Humanities, especially History, English (e.g. Writing as a Naturalist) and Philosophy. Relevant Ethics courses would be especially welcome.

We also could benefit from additional environmental policy content, either in focused courses or content in other courses. This could potentially benefit the developing criminal justice/legal studies program.

III. Examination of data collected for this year's targeted learning outcomes

Goal 1 - Students will have a foundation of knowledge about the issues of sustainability from several disciplines, and will develop a basic understanding of how these disciplines can work together to create a more sustainable world. ***Subgoal 1*** - **Demonstrate level of knowledge among three sustainability domains (environmental, human, economic)**						
Objective	Outcome	How Outcome is Measured	Measurement Tool	Success Criteria	Data Location	Assessment Results
Objective 2 - Students will have an understanding of **economic systems,** the problems of capitalism and the necessary strain it puts on ecosystems.	Students will enroll in required course: ECON 102 *Principles of* Microeconomics and may enroll in elective course: *ECON 101 Principles of Macroeconomics*	Completion of course assignments supporting sustainability student learning outcomes for ECON 102	Successful completion of course requirements of ECON 102; locally developed grading rubrics	70% of students earn a C or higher	Faculty files	Both Fall and Spring deliveries ECON 102 *Principles of Microeconomics* ***met success criterion.*** Fall 2020 delivery of ECON 101 *Principles of Macroeconomics* ***did not meet success criterion.*** Spring 2020 delivery of ECON 101 *Principles of Macroeconomics* ***met success criterion.***
Goal 1 - Students will have a foundation of knowledge about the issues of sustainability from several disciplines, and will develop a basic understanding of how these disciplines can work together to create a more sustainable world. ***Subgoal 2*** - **Demonstrate an increased level of knowledge among three sustainability domains (environmental, human, economic)**						
Objective	Outcome	How Outcome is Measured	Measurement Tool	Success Criteria	Data Location	Assessment Results
Objective 2B: Students may have an **expanded understanding of economic systems** and the strains that capitalism places on ecosystems.	Students may enroll in elective courses: ECON 209 *Introduction to Political Economy*, ECON 255 *The Political Economy of Globalization*, ECON 325 Ecological Economics, and/or ECON 326 *Energy and the Economy.*	Completion of course assignments supporting sustainability student learning outcomes for ECON 209, **ECON 255, ECON 325**, and/or **ECON 326**	Successful completion of course requirements for ECON 209, ECON 255, ECON 325, and/or ECON 326; locally developed grading rubrics	70% of students earn a C or higher	Faculty files	ECON 325 *Ecological Economics* – ***met success criterion.*** ECON 326 Energy and the Economy – ***met success criterion.*** ECON 255 – *offered but insufficient enrollment.* ECON 209 not offered in AY 2020-21

III. Examination of data collected for this year's <u>targeted learning outcomes,</u> *continued:*

Goal 1 - Students will have a foundation of knowledge about the issues of sustainability from several disciplines, and will develop a basic understanding of how these disciplines can work together to create a more sustainable world.

Subgoal 3: ***Demonstrate a basic understanding of how disciplines can work together to create a more sustainable world.***

Objective	Outcome	How Outcome is Measured	Measurement Tool	Success Criteria	Data Location	Assessment Results
Objective 4 - Students will be knowledgeable of both **domestic and international public policy** as it pertains to environmental issues.	Students may enroll in the elective course: POLS 213 *Sustainability* & *Comparative Environmental Policy*. (*Note:* This course was revised from INTL 350 *Comparative Environmental Policy Analysis* upon the combination of *International Studies* and *Political Science* in 2020).	Completion of course assignments supporting sustainability student learning outcomes for INTL 350	Successful completion of course requirements for POLS 213; locally developed grading rubrics	80% of students score at or above C level; 60% at or above B level; 30% at A level	Faculty files	Students in POLS 213 ***did not meet all success criteria.***

Goal 1 - Students will have a foundation of knowledge about the issues of sustainability from several disciplines, and will develop a basic understanding of how these disciplines can work together to create a more sustainable world.

SubGoal 3: ***Demonstrate a basic understanding of how disciplines can work together to create a more sustainable world***

Objective	Outcome	How Outcome is Measured	Measurement Tool	Success Criteria	Data Location	Assessment Results
Objective 5: Students will **understand the individual psychological benefits of being aware of nature…**	Students will enroll in SUS 335/PSY 335 *Psychology of Sustainability*	Completion of course assignment #3 *(see description below)*	locally developed grading rubric – *see SUS 335 / PSY 335 course assignment grading rubric* ***(Enclosure 3)***	For SUS 335 / PSY 335, 80% of students score at or above C level; 60% at or above B level; 30% at A level	Faculty files	Out of 9 students enrolled in the course, 8 completed the assignment. Those 8 all earned a 10/10 on the assignment. 89% of the class earned an A level. ***Success criterion met.***

SUS 335 / PSY 335 Course assignment #3 – Read the chapter "Where Do We Go From Here? Developing an Ecological Worldview" in *Psychology for Sustainability*, 4th Edition, Scott, Amel et al. 2016. Write a paragraph explaining the key learnings from the chapter and offer questions for in-class discussion.

III. Examination of data collected for this year's targeted learning outcomes, *continued:*

Goal 1 - Students will have a foundation of knowledge about the issues of sustainability from several disciplines, and will develop a basic understanding of how these disciplines can work together to create a more sustainable world. SubGoal 3: ***Demonstrate a basic understanding of how disciplines can work together to create a more sustainable world***						
Objective	Outcome	How Outcome is Measured	Measurement Tool	Success Criteria	Data Location	Assessment Results
Objective 6 - Students will understand how ***issues of equity and diversity***, in the social sphere, are related to issues of sustainability.	Students may enroll in the elective courses: SOC 277 *Social Inequality: Class and Ethnicity* ; ECON 209 *Introduction to Political Economy*; ECON 255 *The Political Economy of Globalization*, SOC 200 *Humans, Animals and Interaction; FNIS 285 / SUS 285 Indigenous Environmental Activism & Resistance*	Completion of course assignments supporting sustainability student learning outcomes for electives	Successful completion of elective course requirements; locally developed grading rubrics	80% of students score at or above C level; 60% at or above B level; 30% at A level	Faculty files	ECON 209 not offered. ECON 255 offered but insufficient enrollment. Students in SOC 200 *Humans, Animals and Interaction* ***met all success criteria.*** Students in SOC 277 *Social Inequality: Class and Ethnicity* ***met all success criteria.*** Students in FNIS 285/SUS 285 ***met all success criteria.***

Goal 5: To take a personal inventory of one's own contribution to the problems and the solutions of sustainability.						
	Students will enroll in SUS 101.	Completion of course assignment #1	locally developed grading rubrics – *see SUS 101 course assignment grading rubric* **(Enclosure 4)**	For SUS 101, 70% of students earn a C or higher	Faculty files	Out of 13 students enrolled in the course, all 13 earned between 8.5 – 10 / 10 on the assignment. ***Success criterion met.***
SUS 101 *Introduction to Sustainability* course assignment # 1 "How Heavy is My Footprint?" (see assignment worksheet – **Enclosure 5**).						

IV. Program Changes for the Upcoming Year

Given the issue with continuing to support basic understanding of economics as part of the sustainability program, one solution might be to create a "purpose built" sustainability economics course which provides sufficient foundation in macro- and micro-economics but moves quickly into the integration of economics with the other two domains (environmental and social). Professor Klitgaard has provided syllabi and other academic resources to support his past deliveries of *Ecological Economics* for review and possible adaptation into future course development.

Depending upon the expertise and skill set of the new 2-year visiting Sustainability faculty hire, new sustainability electives offered in the next two years may be able to provide additional reinforcement of some desired areas (e.g. sustainability economics, sustainability policy, upper level ecological/social issues like climate change, community organizing, etc.). Among the desired qualifications for the sustainability faculty hire is a background or interest in teaching transdisciplinary courses, especially including the humanities, in which our program is woefully lacking.

Another area of possible weakness is in sustainability policy. Student performance in POLS 213 *Sustainability and Comparative Environmental Policy* was mediocre. The course was revised from the earlier INTL 350 *Comparative Environmental Policy Analysis*, which also had a spotty student success record in the past. Of even greater concern, with the discontinuance of International Studies and combination with Political Science, but only one remaining tenure-track professor to regularly deliver program courses, it is less likely that this revised course can be offered on a sufficiently regular schedule to be useful. We will investigate other opportunities to deliver relevant policy courses. One option may be to include ENVR 303 *Environmental Impact Assessment*, which looks at regulations governing development activities.

Referring to the Sustainability Learning Goals/objectives, we observed that there are three areas that seem to be directly related to one another.

Goal 1 – Subgoal 3 - Objective 5: Students will understand the individual psychological benefits of being aware of nature, how individual awareness creates a more healthy society and how we can persuade others to examine their relationship to building a healthy planet.

Goal 2 - Students will understand the complex ways human behavior has led to an ***un***sustainable world.

Goal 3 - Students will understand the complex ways human behavior can lead to a more equitable and sustainable world.

These goals/objectives are similarly explored and evaluated, and in our problem-based learning framework, are addressed simultaneously. We feel they could logically be collapsed into one goal going forward.

Action steps:

Goal 1 Subgoal 3 Objective 5 will be eliminated and some relevant text added to Goal 2.

Subgoal 3 objectives will be renumbered.

Goals 2 and 3 will be collapsed together into one Goal 2 statement, which will read:

> Goal 2 – Students will understand the complex ways human behavior has led to an unsustainable world and how we can persuade others to examine their relationship to building a more equitable and sustainable planet.

Successive goal statements will be renumbered.

This change will be reflected in the ***AY 2021-22 Assessment Plan and Report.***

V. Action Plan for the Upcoming Year

● **Learning outcomes to be targeted next year** follow the ***Sustainability Program Assessment Timeline*** **(Enclosure 6),** which was revised to factor in the goal/objective changes listed above.

In AY 21-22, we will assess the **environmental** "pillar" of knowledge acquisition (Goal 1, Subgoal 1, Objectives 1 and 1B).

- ENVR 101L *Introduction to Environmental Science* is considered to be an appropriate required course when assessing whether students have a ***basic scientific understanding of ecosystems*** and the limits of these systems.

- ENVR 102L *Conservation of Biodiversity* and ENVR 340 *Sustainable Agriculture* also seem to be appropriate elective courses to include when assessing Objective 1B – whether students gain an ***expanded scientific understanding of ecosystems***. BIOL 119L *Ecology and Evolution* may be a less appropriate choice here as it is an introductory level general biology course taken by non-majors in fulfillment of General Education Natural Science requirements; meeting even the 70% at C level threshold this year was a challenge. We need to discuss this with relevant faculty.

- Advanced Environmental Science courses that may better support the objective of expanded scientific understanding of ecosystems and the limits of these systems could include ENVR 303 *Environmental Impact Assessment and/*or ENVR 204 *The Climate System.* For these two courses, completion of the required ENVR 102L *Introduction to Environmental Science* serves as a pre-requisite. Other Biology courses that could help students achieve deeper understanding of ecosystems could include BIOL 305 *Terrestrial Field Biology*; BIOL 325L *Limnology*; BIOL 353 *Advanced Ecology*, but for these courses, the additional pre-requisite of completion of BIOL 130L *Biology of Organisms* may prove problematic.

In AY 21-22, we will assess **Goal 1, Subgoal 3, Objective 3:** *Students will have a* **cross-cultural or trans-national comparative understanding of how humans interact with the environmen**t *in ways that both put undue strain on the environment, and ways that are less harmful to the environment. Included in this is a critical analysis of "the good life."*

- Offered in Fall 2021 will be the *Hawaii: Colonialism and Tourism* course. While this course is not included in the major, it is often substituted for the ANTH 359 *The Pacific and Cultural Survival* elective as it covers much of the same ground. We will solicit from Dr. Olson an appropriate course assessment measurement of this learning objective.
- If COVID travel restrictions ease, this course also prepares interested students in the OCS 300 *Anthropological Experience in Hawaii* during January 2022. There may be opportunities to infuse specific assessment measures into that short-term immersion experience.
- It is not yet known if other appropriate cross-cultural courses might be offered in Spring 2022, such as OCS 305 *Anthropological Experience in Belize* or ANTH 345 *Maya Ethnography.* If so, we may include assessments of those courses as well.

Also to be evaluated in AY 21-22 is **Goal 3 - *Students will be prepared to think about* psychological, social and cultural adaptations that are necessary to survive in a changing climate.**

- ANTH 230 / SUS 230 *Culture and Water* will be offered in Fall 2021. Students use what they have learned in the course about water-related climate adaptions to design a culturally appropriate water management system that is presented as a final synthesis project.

- One exercise in SUS 335 / PSY 335 *Psychology of Sustainability* will be used to assess this learning goal. One of the texts used for this course, which will be offered in Spring '22, is titled "What We Think About When We Try *Not* to Think about Global Warming – Toward a New Psychology of Climate Action". Exercises have students read chapters of this text and reflect on the important points in each chapter and how they might incorporate what they learn into their final team project. In the book section entitled "Doing", one chapter is particularly appropriate when offering climate-relevant behavior change strategies: Chapter 10 – *Reframing the Climate Messages.* We will assess the degree to which students successfully learn the lessons from that reading and reflection with their assignment grade.

- ENVR 340 *Sustainable Agriculture* will be offered in Fall 2021. We will solicit from Dr. O'Leary an appropriate course assignment to assess the learning about social and/or cultural adaptions to climate change.

In AY 2021-22, we will also be evaluating the **General Learning Goal A: Effective written communication** using the grades on the following writing-intensive course artifacts:

- SUS 101 *Introduction to Sustainability* – final project paper grade
- SUS 335 / PSY 335 *Psychology of Sustainability* – final team project paper grade
- SUS 195 *Critical Thinking about Sustainability* – grade on Reflection Essay #2
- SUS 401 *Capstone in Sustainability* – grade on capstone paper

● ***When will it be done?*** Data for courses to be assessed in AY 2021-22 will be requested at the end of each semester when the relevant course is offered.

● ***Who will be in charge of collecting this data?*** Individual faculty will collect the requested assessment data for their courses/assignments; this data will be collated by the new chair of the Sustainability program (being hired in summer 2021).

APPENDIX 1. **Descriptions and Learning Goals for Sustainability Major <u>Required</u> Courses**

SUS 101 *Introduction to Sustainability*
An overview of the concept of sustainability, its evolution and selected methodologies to quantify impacts. This course equips students to develop and evaluate solutions to national and local challenges by balancing factors that are environmental, economic and socio-cultural. Students who successfully complete SUS 101 will:

1. be able to define sustainability in actionable terms.
2. know how sustainability relates to their lives and their values, and how their actions impact issues of sustainability.
3. utilize their knowledge of sustainability to change their daily habits and consumer mentality.
4. understand how systems – ecosystems, individual humans in society – are interrelated.
5. possess and know how to apply change agent skills.
6. apply concepts of sustainability to their campus and community by engaging in the challenges and solutions of sustainability at Wells.

SUS 195 Critical Thinking about Sustainability
Students will attend sustainability-related events and activities during the semester and write reflections on their experience. Students will be prepared to discuss those events they attended at weekly meetings of the tutorial group. Events eligible for tutorial credit will be announced in advance or pre-approved by the instructor for eligibility. Events will include but not be limited *to Sustainability Perspectives* and *Sustainable Business* series talks, *Sustainability Films* and webinars, relevant *Science Colloquium* talks, and other events and activities organized by the *Center for Sustainability* and others.
Students' Learning Outcomes
1. Students will be able to explain if/how the eligible event relates to each of the three "pillars" of sustainability (environmental, economic, social) and how those domains overlap and support or conflict with one another.
2. Students will be able to identify and understand relationships within and between individuals, groups, institutions and their environment. (General Education Assessment – Social Systems – Learning Goal 1).
3. Students will be able to identify and understand the history of societal issues and the broader context within current society. (General Education Assessment – Social Systems – Learning Goal 2)
4. Students will conduct relevant independent research on the sustainability challenge covered in the eligible event and demonstrate how their learning on the subject has expanded. Students will be able to evaluate the credibility of sources they use.
5. Students will practice planning and goal setting. (Gen Ed Assessment – Skills for Lifelong Learning – Goal 2)
6. Students will develop awareness and understanding of one's own thought process (metacognition). (Generation Education Assessment – Skills for Lifelong Learning – Goal 1)
7. Students will be able to explain how the sustainability content of the event relates to their lives and their values. Students will be able to offer valuable feedback on the quality and value of the eligible event.
8. Students will reflect on learning and adapt as necessary. (Generation Education Assessment – Skills for Lifelong Learning – Goal 3)

ENVR 101L *Introduction to Environmental Science*
An introduction to environmental science including an analysis of natural resources and the environmental impact of their extraction and use. Environmental quality, pollution, toxicology and environmental science as the basis for effective environmental policy are among the topics covered. Students who successfully complete ENVR 101L will appreciate and understand:
1) The nature of the world's natural resources;
2) The impact on humans and on the environment of resource extraction and use;

3) The role of humans as effectors of environmental change;
4) How complex environmental problems can be addressed and solved;
5) Each individual's impact on the natural world;
6) The importance of environmental science as the basis for sound environmental policies.

ECON 102 ***Microeconomics***
A survey of basic microeconomic concepts with emphasis on the concepts of supply and demand, production, and distribution. Special attention will be paid to ideas of competition, market structure, efficiency, and equity using examples from current policy discussions. *(see general Economics program goals below)*

The **Economics** program goals are aimed at students to:
1. Develop understanding of the fundamental mechanisms of how an economy works and how the business world functions. This is accomplished by analysis of both theoretical models and empirical evidence from the actual and real-world economy.
2. Become aware of a broad and diverse array of economic and business theories, issues and concerns, and examine underlying policy implications.
3. Develop and foster intellectual curiosity and analytical and critical capabilities with attention to abstract and applied reasoning skills to think logically.
4. Develop quantitative skills and problem-solving abilities to comprehend and analyze mathematical and statistical reasoning.
5. Develop the ability to speak and communicate effectively with reasoning, critical analysis and valid arguments.
6. Develop an awareness of the global community environment and foster sensitivity to economic, social, biological and cultural diversity.

SUS 231 / ANTH 231 ***Culture and Water***
Water is essential for human existence and culture is inherent to human experience. With that in mind, this applied anthropology course examines how our daily need for water is informed by a diversity of cultural expectations, tastes, and desires, as well as by environmental constraints. The course will also pay particular attention to the challenges of climate change in the 21st century.

SUS 335 / PSY 335 ***Psychology of Sustainability***
This course examines theoretical perspectives and empirical research on promoting environmentally sustainable behavior. Through team-based, service learning projects, students apply knowledge gained in the course to address sustainability issues on the Wells campus and in the surrounding community. Students in PSY 335 will:
• explore research and theory on the interactions between human behavior and the environment (1, 2); • examine ways in which increased understanding of human behavior may be the key to creating solutions to environmental problems;
• be encouraged to think critically about the ways in which psychological perspectives may provide insights into creating a sustainable future for the planet and its inhabitants;
• work in groups to address environmental issues on the Wells campus;
• enhance communication skills by conducting a presentation or workshop to which appropriate administrators, faculty, and/or students will be invited;
• enhance critical thinking about the complexity of environmental problems and the psychological underpinnings of environmentally destructive behavior;
• apply knowledge of the field in a real-world setting;
• work with others to better understand different perspectives and worldviews ;
• develop APA format writing skills; and
• facilitate and contribute to class discussions.

SUS 290 ***Internship in Sustainability***
Individually arranged participation in work at institutions devoted to sustainability.
Student learning outcomes are individually devised with the student and the internship site supervisor.

SUS 390 ***Advanced Internship in Sustainability***
Individually arranged participation in work at institutions devoted to sustainability. Students will develop at a more advanced level the skills and techniques demanded from a previous sustainability internship.
Student learning outcomes are individually devised with the student and the internship site supervisor.

SUS 401 ***Senior Project in Sustainability***
Students will complete research projects on a topic of their interest.
Student learning outcomes are individually devised in consultation with the student.

APPENDIX 2. **Descriptions and Learning Goals for Sustainability Major - Elective Courses**

Environmental

ENVR 102L ***Conservation of Biodiversity***
An introduction to the field of conservation science. Local and global aspects of species, ecosystem and landscape conservation will be discussed.
Students who successfully complete ENVR 102L will be able to demonstrate their knowledge of the following:
1) major issues that define the discipline of conservation biology;
2) the nature and importance of biodiversity;
3) threats to biodiversity;
4) efforts and approaches to conservation of biodiversity, species, ecosystems and landscapes;
5) the history and significance of U.S. national parks;
6) local organizations and their efforts to protect local ecosystems and the biodiversity they contain.

BIOL 119L ***Ecology and Evolution***
Organic evolution, the unifying concept in biology, and its relationship with ecology, the distribution and abundance of organisms. The role of ecology and evolution in environmental science and conservation biology.
Students who successfully complete BIOL 119L will be able to
1) Understand the basic components of the physical environment and describe how they interact to affect the living component of the environment, at multiple scales;
2) Understand basic evolutionary concepts, and why they are central to ecology;
3) Outline basic world climate patterns, and their importance;
4) Outline the pathways energy and nutrients take as they flow through an ecosystem;
5) Describe environmental interactions and behavior at the level of the organism, including homeostasis, acclimation, and developmental response;
6) Describe how species interact, showing how competition, predation, and coevolution operate to influence the interdependence of species;
7) Describe the concept of the population, including growth and regulators;
8) Describe the concept of the community, giving special attention to biodiversity and its role in community well-being;
9) Use the scientific method to formulate and test hypotheses, as well as communicate the results with the greater scientific community;
10) Have a basic understanding of statistics, and be able to construct, read, and interpret graphs;
11) Prepare a research report in the standard style of such reports in the literature of ecology and evolution;
12) Understand that the solutions to environmental problems demand both scientific and social understanding.

ENVR 340 ***Sustainable Agriculture***
This course will examine the environmental consequences of agriculture as it is practiced today in tropical and temperate regions, and discuss the agroecological basis for tools and techniques designed to address these problems. Students who successfully complete ENVR 340 will be able to:
1) Apply ecological principles to agricultural systems;
2) Understand the environmental impact of temperate agriculture;
3) Become familiar with the environmental impact of tropical agriculture;
4) Discuss how government policies affect decisions made by farmers in the United States;
5) Describe how the application of ecological principles can be used to reduce the environmental impact of agriculture;
6) Prepare and deliver oral presentations related to sustainable agriculture.

Economic

ECON 101 *Macroeconomics*
A survey of the basic principles of economic analysis and their application in an examination of the structure and functioning of market economy, with emphasis on the problems of inflation and unemployment.
(see general Economics program goals below)

ECON 209 *Introduction to Political Economy*
An analysis of economic theories focusing on the processes of production and accumulation within institutional and political contexts. Topics include the labor theory of value, monopoly capitalism, and the social structure of accumulation.
(see general Economics learning objectives below)

ECON 255 *The Political Economy of Globalization*
The world economy from the standpoint of producing and distributing a surplus. Topics include classical theories of imperialism, global finance, and global and domestic economies in an era where economic growth is limited by peak oil and climate change.
(see general Economics learning objectives below)

ECON 325 *Ecological Economics*
This course models the economy as a sub-system of larger ecosystem, and addresses questions such as optimal scale, investments in natural capital, sustainability, and thermodynamic limits to growth. Sustainable development is treated within the historical context of uneven development.
(see general Economics learning objectives below)

ECON 326 *Energy and the Economy*
This course focuses upon the history of energy's role in the transformation from pre-industrial to contemporary society. The analytical framework includes theories of political economy, the energy return on investment, and the internal and biophysical limits to economic growth.
(see general Economics learning objectives below)

General Economics program goals:
1. Develop understanding of the fundamental mechanisms of how an economy works and how the business world functions. This is accomplished by analysis of both theoretical models and empirical evidence from the actual and real-world economy.
2. Become aware of a broad and diverse array of economic and business theories, issues and concerns, and examine underlying policy implications.
3. Develop and foster intellectual curiosity and analytical and critical capabilities with attention to abstract and applied reasoning skills to think logically.
4. Develop quantitative skills and problem-solving abilities to comprehend and analyze mathematical and statistical reasoning.
5. Develop the ability to speak and communicate effectively with reasoning, critical analysis and valid arguments. 6. Develop an awareness of the global community environment and foster sensitivity to economic, social, biological and cultural diversity.
7. Achieve adequate tools and skills that would enable a graduate to successfully obtain professional employment in the private or public sector, or acceptance into a reputable graduate program.
8. Achieve appropriate academic content and rigor comparable to any reputable undergraduate institution.
9. Become informed citizens who can independently think and study economic and business topics and who can effectively share their perspectives, results and implications from such study.

Social

ANTH 230 ***Culture and Gardens***
This course will travel through time and space to garden spaces and practices found in a wide range of cultures.
(sustainability student learning objectives have been requested)

ANTH 270 ***Anthropology and Food Studies***
You gotta eat, right? Nothing simpler than that, is there? Well, I guess that's true. However, as a social scientist, especially as an anthropologist or a sociologist, there's a whole lot more going on than keeping your body alive. This class just scratches the surface of that "whole lot more." It's meant to be a smorgasbord of tiny offerings, a little taste of this theory, or smidgen of another way of looking at things. The commonality to these offerings is the sociological imagination (looking at the larger social aspects beyond personal experiences) and the anthropological perspective (seeing things holistically and comparatively). It's meant to make you hungry for more. In this course:

1) You will have experience engaging in the professional discourse of sociology and anthropology both verbally and through writing.
2) You will come to know several important scholars in the study of food.
3) You will be able to identify and articulate timely issues in food studies (such as food politics, food and identity, food and social and economic inequalities, food as a means to build community, the food justice movement, the Slow Food movement, etc.)
4) You will gain knowledge of and practice using several theoretical frameworks to examine enduring and timely social issues.
5) You will gain experience using the sociological imagination and the anthropological perspective.
6) You will come to understand both materialist and interpretive approaches to social scientific study.
7) You will come to understand how social systems and systems of meaning perpetuate social inequalities and an unsustainable world.
8) You will be exposed to, and hopefully come to appreciate diverse lifeways.
9) You will be able to better articulate the need for social justice and suggest pathways to curtail social inequalities.
10) You will have a better understanding of how you contribute to, but can lessen your role in perpetuating social inequality and environmental destruction.

ANTH 359 ***The Pacific and Cultural Survival***
This course is a study of Pacific cultures and the social, economic, religious, political, and environmental challenges that threaten their survival. Topics such as global warming, depletion of the natural environment, political unrest, and economic crisis are considered in relation to local cultural responses.
(sustainability student learning objectives have been requested)

POLS 213 ***Sustainability and Comparative Environmental Policy***
At the heart of political science analysis is the question of the struggle for power. Thus, the major exposes students to changing paradigms and schools of thought centered on how institutional and individual power is gained, organized, used, lost or abused. The major introduces students to the various methods, concerns, and analytical issues in the basic subfields of the discipline: American politics, comparative politics, international relations, and political theory. **The** major's goals are to help students:
(1) Understand the basic concepts within the studies of interactions among peoples and nation-states within their environments;
(2) Apply theories, research and concepts intelligibly and holistically in analyzing the world's events, actors and organizations;
(3) Possess critical thinking skills needed to retain, manage and synthesize complex information and ideas.

SOC 200 ***Humans, Animals, and Interaction***

What can our close living and working relationships with non-human animals reveal about human society? Why do we eat some animals, but consider others (wo)men's best friend? This course examines our complicated and often contradictory relationships with animals.

Students should be able to:

- Understand the historical and social foundations for people's understandings of and interactions with non-human animals
- Explain classic and contemporary debates regarding the moral status of human-animals
- Critique the leading positions associated with animal welfare, animal rights, and deep ecology movements while articulating and supporting your own positions
- Identify how social institutions create, maintain, and reproduce inequalities impacting humans and non-human animals
- Consider the role(s) of non-human animals in our ability to create meaningful lives for ourselves and others
- Refine both written and oral communication skills

SOC 277 ***Social Inequalities: Class and Ethnicity***

Understanding social inequality has been a focus of sociology from its beginnings. This course is an investigation of the social and economic inequalities that exist in the United States, and to some extent beyond. During this semester, we will examine the lives of the poor, the power of the upper class, the meanings and significance of "race" and some of the mechanisms by-which privilege (and oppression) work. Because this course also is part of the Individualized major in Sustainability we will often think about these issues in terms of sustainable environments, both physical and social. We will frequently ask: how do I fit into the big picture? Am I promoting or perpetuating inequalities? And what can do to promote greater equity? Course Goals:

1) To allow students greater experience in writing formally about sociological issues.
2) To develop student's sociological imagination through understanding the social structures that effect and create race and class.
3) To develop student's awareness of domestic inequalities and how the US promote inequalities outside of the US.
4) To develop student's ability to understand structural changes that could lead to greater social equity and greater environmental sustainability.
5) To develop student understanding as to how they can personally promote change.

FNIS 285 / SUS 285 ***Indigenous Environmental Activism & Resistance***

This course will examine ways in which Indigenous Peoples locally and globally are engaged in the defense of water, land, and all our relations, how indigenous knowledge and western science can work together to restore environmental damage, and how Indigenous and non-Indigenous people can work together for environmental justice.

The *First Nations and Indigenous Studies* (FNIS) program is primarily focused on the peoples of North and South America while being inclusive of connections with indigenous peoples in other parts of the world such as Hawaii, Aotearoa (New Zealand), and Australia. The program is multidisciplinary and reflects a wide range of academic viewpoints originating from psychology, history, anthropology, women's and gender studies, and sociology, among others. Emphasized areas include histories, contemporary issues, environmental justice, social justice, oral and written literature, art, and law.

Academic Performance in Sustainability Major Courses 2020-21

based on Sustainability major approved Spring 2020

Fall 2020			Enrolled	A*/A/A-	B+/B/B-	C+/C/C-	D+/D/D-	F	%>C	%>B	%>A	Success Criteria	Assessment
E	BIOL 119L	Ecology & Evolution (Schnurr)	32	8	8	4	4	8	63%			70% of students earn a C or higher	did not meet success criterion
E	ECON 101	Principles of Macroeconomics (Uddin)	6	1	1	2	1	1	67%			70% of students earn a C or higher	did not meet success criterion
R	ECON 102	Principles of Microeconomics (Klitgaard)	16	2	7	6	1	0	94%			70% of students earn a C or higher	students met success criteria
E	ECON 325	Ecological Economics (Klitgaard)	4	4	0	0	0		100%			70% of students earn a C or higher	students met success criteria
R	ENVR 101L	Introduction to Environmental Science (O'Leary)	28	12	8	3	2	3	82%	71%	43%	70% of students earn a C or higher	students met success criteria
E	FNIS 285 / SUS 285	Indigenous Environmental Activism & Resistance (Hill)	10	5	2	2	1	0	90%	70%	50%	80% of students score at or above C level; 60% at or above B level; 30% at A level	students met success criteria
R	SUS 101	Introduction to Sustainability (Brown)	13	6	3	2	0	2	85%			70% of students earn a C or higher	students met success criteria
R	SUS 195	Critical Thinking about Sustainability (Brown)	11	3	5	3	0	0	100%			70% of students earn a C or higher	students met success criteria
R	SUS 290	Internship in Sustainability (Brown)	1	0	0	1 (S)	0	0	100%			Minimum 2-credit internship earns an "S" grade for satisfactory completion of requirements.	students met success criteria
R	SUS 390	Advanced Internship in Sustainability (Brown)	1	0	0	1 (S)	0	0	100%			Minimum 2-credit internship earns an "S" grade for satisfactory completion of requirements.	students met success criteria
R	SUS 401	Capstone in Sustainability (Brown)	3	3	0	0	0	0	100%	####	100%	80% of students score at or above C level; 60% at or above B level; 30% at A level	students met success criteria

Spring 2021			Enrolled	A*/A/A-	B+/B/B-	C+/C/C-	D+/D/D-	F	%>C	%>B	%>A	Success Criteria	Assessment
R	SUS 335 / PSY 335	Psychology of Sustainability (Brown)	9	4	5	0	0	0	100%	####	44%	80% of students score at or above C level; 60% at or above B level; 30% at A level	students met success criteria
R	SUS 195	Critical Thinking about Sustainability (Brown)	18	8	3	4	1	2	83%			70% of students earn a C or higher	students met success criteria
R	SUS 401	Capstone in Sustainability (Brown)	1	1	0	0	0	0	100%	####	100%	80% of students score at or above C level; 60% at or above B level; 30% at	students met success criteria
R	SUS 290	Internship in Sustainability (Brown)	1	0	0	1 (S)	0	0	100%			internship earns an "S" grade for satisfactory completion of	student met success criteria
E	ANTH 230	Culture and Gardens (Olson)	7	5	1	1	0	0	100%	86%	71%	80% of students score at or above C level; 60% at or above B level; 30% at A level	students met success criteria
E	ECON 101	Principles of Macroeconomics (Uddin)	6	3	0	3	0	0	100%			70% of students earn a C or higher	students met success criteria
R	ECON 102	Principles of Microeconomics (Klitgaard)	9	4	1	4	0	0	100%			70% of students earn a C or higher	students met success criteria
E	ECON 255	Political Economy of Globalization (Klitgaard)	*course offered but insufficient enrollment*									70% of students earn a C or higher	
E	ECON 326	Energy and the Economy (Klitgaard)	3	3	0	0	0	0	100%			70% of students earn a C or higher	students met success criteria
E	ENVR 102L	Conservation of Biodiversity (O'Leary)	11	5	4	0	0	2	82%			70% of students earn a C or higher	students met success criteria
E	POLS 213	Sustainability & Comparative Environmental Policy (Lumumba-Kasongo)	8	2	3	1	1	1	75%	63%	25%	80% of students score at or above C level; 60% at or above B level; 30% at A level	did not meet all success criteria
E	SOC 200	Humans, Animals and Interaction (Renfrow)	12	5	6	1	0	0	100%	92%	42%	80% of students score at or above C level; 60% at or above B level; 30% at A level	students met success criteria
E	SOC 277	Social Inequality (McClusky)	15	5	9	0	0	1	93%	93%	33%	80% of students score at or above C level; 60% at or above B level; 30% at A level	students met success criteria

Sustainability Major courses

R	SUS 101	Introduction ot Sustainability
R	SUS 195	Critical Thinknig about Sustainability
R	ENVR 101L	Introduction ot Environmental Science
R	ECON 102	Microeconomics
R	ANTH/SUS 231	Culture and Water
R	SUS/PSY 335	Psychology of Sustainability
R	SUS 290/390	Internship in Sustainability
R	SUS 401	Sustainability Capstone
E	ENVR 102L	Conservation of Biodiversity
E	BIOL 119L	Ecological and Evolution
E	ENVR 340	Sustainable Agriculture
E	ECON 101	Macroeconomics
E	ECON 209	Introduction to Political Economy
E	ECON 255	The Political Economy of Globalization
E	ECON 325	Ecological Economics
E	ECON 326	Energy and the Economy
E	ANTH 230	Culture and Gardens
E	ANTH 270	Anthropology and Food Studies
E	ANTH 359	The Pacific and Cultural Survival
E	POLS 213	Sustainability and Comparative Environmental Policy
E	SOC 200	Humans, Animals, and Interaction
E	SOC 277	Social Inequality: Class and Ethnicity
E	SUS/FNIS 285	Indigenous Environmental Activism and Resistance

Sustainability Program - Curriculum Map 2021-2022

Mission:

The Sustainability major allows students to examine the environment as a physical, social, economic, cultural and psychological entity that humans have imperiled. From both a global and a local perspective, we provide students with the knowledge and skills to understand the origins of the problems the environment faces, we direct them to thinking about multi-faceted solutions, and we help them to develop possible personal and societal adaptations to a changing world.

Sustainability Academic Program Goals

Goal 1	Students will have a foundation of knowledge about the issues of sustainability from several disciplines, and will develop a basic understanding of how these disciplines can work together to create a more sustainable world.	
Subgoal 1: *Demonstrate level of knowledge among three sustainability domains (environmental, human, economic)*		
	Objective 1:	Students will have basic scientific understanding of ecosystems and the limits of these systems.
	Objective 2:	Students will have an understanding of economic systems, the problems of capitalism and the necessary strain it puts on ecosystems.
Subgoal 2 : *Demonstrate an increased level of knowledge among three sustainability domains (environmental, human, economic)*		
	Objective 1B:	Students may have an expanded scientific understanding of ecosystems and the limits of these systems.
	Objective 2B:	Students may have an expanded understanding of economics systems and the strains the capitalism places on ecosystems.
Subgoal 3: *Demonstrate a basic understanding of how disciplines can work together to create a more sustainable world.*		
	Objective 3:	Students will have a cross-cultural or trans-national comparative understanding of how humans interact with the environment in ways that both put undue strain on the environment, and ways that are less harmful to the environment. Included in this is a critical analysis of "the good life."
	Objective 4:	Students will be knowledgeable of both domestic and international public policy as it pertains to environmental issues.
	Objective 5:	Students will understand how issues of equity and diversity, in the social sphere, are related to issues of sustainability.
Goal 2	Students will understand the complex ways human behavior has led to an unsustainable world and how we can persuade others to examine their relationship to build a more equitable and sustainable planet.	
Goal 3	Students will be prepared to think about psychological, social and cultural adaptations that are necessary to survive in a changing climate.	
Goal 4	Students will take a personal inventory of one's own contribution to the problems and the solutions of sustainability.	
Goal 5	Students will learn basic organizing skills to help build a movement around issues of sustainability.	

General Student Learning Outcomes

Goal A Students will develop effective written communication skills.

Goal B Students will develop effective oral communication skills.

Goal C Students will develop skills using technology.

Sustainability Academic Program Curriculum Map, *continued:*

0 = The goal or objective is not met in this course/

1 = The goal or objective is addressed at the introductory level.

2 = The goal or objective is covered at the intermediate level and assumes some prior knowledge.

3 = The goal or objective is covered at the degree level and assumes knowledge a graduating senior in the Sustainability major should have attained prior to taking this course.

Course	**Goal 1**							**Goal 2**	**Goal 3**	**Goal 4**	**Goal 5**	**General SLOs**		
REQUIRED	***Obj. 1***	***Obj. 1B***	***Obj 2***	***Obj. 2B***	***Obj. 3***	***Obj. 4***	***Obj. 5***					**A**	**B**	**C**
SUS 101	1	2	1	1	2	1	2	2	1	3	1	2	1	2
SUS 195	1	1	1	1	0	1	1	1	1	0	0	2	0	2
ENVR 101L	1	0	0	0	0	0	0	0	0	0	0	1	0	1
ECON 102	1	1	1	1	1	1	1	1	0	0	0	1	0	1
SUS/ANTH 231	1	1	1	0	2	2	2	2	2	2	2	1	3	1
SUS/PSY 335	2	1	1	0	2	1	2	3	3	2	2	3	3	3
SUS 290/390	*specific internship sustainability learning goals ane objectives are developed; may meet som*											2	2	1
SUS 401	3	1	3	1	3	3	3	2	2	2	1	3	3	3
0														
ENVR 102L	1	3	0	0	0	0	0	0	0	0	0	1	0	1
BIOL 119L	1	3	0	0	0	0	0	0	0	0	0	1	0	1
ENVR 340	2	3	0	0	0	0	0	0	0	0	0	2	0	2
ECON 101	1	1	1	1	1	1	1	1	0	0	0	1	0	1
ECON 209	1	1	3	3	3	3	3	2	3	2	2	2	1	2
ECON 255	1	1	3	3	3	3	2	3	2	1	1	2	1	2
ECON 325	3	3	3	3	2	3	3	3	2	2	1	2	1	2
ECON 326	3	3	3	3	3	3	3	3	3	2	2	2	1	2
ANTH 230	1	1	1	0	2	2	2	2	2	2	2	2	2	2
ANTH 270	0	0	1	0	1	0	1	1	0	0	0	2	2	2
ANTH 359	2	2	3	3	3	2	3	3	3	3	3	2	3	2
POLS 213	1	1	1	1	3	3	3	1	2	0	0	2	2	2
SOC 200	0	0	0	0	0	0	1	0	0	2	0	1	1	1
SOC 277	0	0	0	0	0	0	1	0	0	2	0	2	1	2
FNIS/SUS 285	0	0	1	0	2	2	2	1	2	0	1	1	0	0

SUS 335 / PSY 335 Assignment Discussion Question grading rubric

Content	***possible***
Shows evidence of close reading	***1***
Follows format guidelines	1
Provides context to issues in reading	1
Submission is insightful/evidences critical thinking	1
Offers discussion-worthy question(s)	1
subtotal	***5***
Writing quality	
Clear flow of ideas	1
reveals connections between writer and content	1
uses specific, concrete details to make clear points	1
uses precise language	1
Good use of grammar/spelling/punctuation	1
subtotal	***5***
Total points possible	**10**

SUS 101 *Introduction to Sustainability* - Homework Assignment Grading Rubric

Assignment Addresses Content; evidence of Critical Thinking	Entry is high quality, thoroughly answering all questions. Makes excellent connections between content and real-life and other course content	Most questions answered thoroughly; good evidence of personal connection to learning.	Questions not answered in detail; some evidence of personal connection to content, but need further explanation	Missing answers; little evidence of personal connection; many need further explanation or justification	Omits multiple answers; lacks personal connections to content.	No Attempt
	5 points	4 points	3 points	2 points	1 points	0 points
Grammar, spelling and sentence fluency	An occasional (0-2) grammatical or spelling error; excellent sentence fluency	A few (3-4) grammatical or spelling errors; good sentence fluency.	Many (5 -6 grammatical or spelling errors; acceptable sentence fluency.	A large amount (7+) of grammatical or spelling errors negatively impacts sentence fluency.	The amount of errors makes the assignment unreadable or incomprehensible	No Attempt
	5 points	4 points	3 points	2 points	1 points	0 points
Timely submission	On-time submission	Late submission (up to 1 day late)	Late submission (over 1 day late)			
	0 points	-5 points	-10 points			

Maximum grade: 10 points

SUS 101 *Introduction to Sustainability* - Exercise #1 – *How "Heavy" is My Footprint?*

Watch this short video: *"Earth Overshoot Day 2020" https://youtu.be/z4hMALflIeA*
Read: *"Earth Overshoot Day"*

Go to: *http://www.footprintcalculator.org/*
Take the personal ecological footprint quiz***, answering the questions <u>as a member of your family at home.</u>***

What does the term *"ecological footprint"* mean?

What does the term *"ecological overshoot"* mean?

When was "Earth Overshoot Day" in ***2020***? (*refer to the video above*)
When was *"Earth Overshoot Day"* in **2019**? (from the *Earth Overshoot Day* reading)
How does the date of *Earth Overshoot Day* in past years compare to that in 2020?

If everyone on earth lived like you/your family, from the ***Footprint Calculator***, how many Planet Earths would it take to provide enough resources?

What was your family's "Earth Overshoot" date?

Did that surprise you?

(Click on the Details tab on your footprint analysis to answer these questions)
What is your family's Ecological Footprint (in *global hectares* or *gha*):
What is your family's carbon footprint (CO_2 emissions in tonnes per year):
What is your family's Carbon Footprint (% of your total Ecological Footprint):

How many global hectares are available per person? (roll over ⓘ next to **(global hectares or gha)**

How does your family's use of global hectares compare to the amount globally available?

By LAND TYPE, what was the greatest type of global acreage consumed to support your lifestyle:
(e.g. carbon footprint, crop land, grazing land, forest products, built-up land, fishing grounds)

Why do you think that is?

What was the second most-used type of land:
What was the third most-used type of land:
What was the LEAST used type of land: Why do you think that is?

From the Global Footprint Network site, what is included in the category of "services"?
Look in the FAQs: *http://www.footprintnetwork.org/footprint-calculator-faq/*

From your Ecological Footprint breakdown **by Consumption Category**, what is the *"heaviest"* part of your family's footprint?
(e.g. Food, Shelter, Mobility, Goods, Services)

Why do you think that is?

What is the *"lightest"* part of your footprint?

Why do you think that is?

Did any particular part of your consumption breakdown surprise you?

Click on the ***Solutions*** option. Were there any steps there that you would be able to take? Which ones?
If opt for one or more of those options and Re-take the Quiz, how much difference did that make in the number of Planet Earths it would require to support you/your family's (revised) lifestyle?

Do you think your footprint would be *"heavier"* (more consumptive) or *"lighter"* (less consumptive) if you retook the Ecological Footprint Quiz as a student living in a shared room on-campus?

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Retake the *Ecological Footprint* quiz as a ***Wells student living in a shared room on-campus*** and re-answer the questions above and also answer the following questions:

If everyone on earth lived like you/your roommate(s), from the quiz, how many Planet Earths would it take to provide enough resources?

Did that surprise you?

To support you/your roommate's lifestyle, how much of the Earth's productive area does it require? global acres

What was you/your roommate's "Earth Overshoot" date?

What is your you/your roommate's Ecological Footprint (in *global hectares* or *gha*):
What is your you/your roommate's carbon footprint (CO_2 emissions in tonnes per year):
What is your you/your roommate's Carbon Footprint (% of your total Ecological Footprint):

To support you/your roommate's lifestyle, how much of the Earth's productive area does it require? global acres

What was the largest type of global acreage consumed to support your lifestyle:
(e.g. carbon footprint, crop land, grazing land, forest products, built-up land, fishing grounds)

Why do you think that is?

What was the second most-used type of land:
What was the third most-used type of land:
What was the LEAST used type of land:

Why do you think that is?

From your Ecological Footprint breakdown by consumption category, what is the *"heaviest"* part of you/your roommates' footprint?
(e.g. Food, Shelter, Mobility, Goods, Services)

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Is there a substantial difference in your ecological footprint between the two situations?

What contributes the most to those differences?
Explain how knowing more about your ecological footprint helps you better understand relationships within and between individuals and your environment.