

BACHELOR OF SCIENCE IN SUSTAINABILITY

<https://www.pacific.edu/academics/sustainability-degree-bs>

Degrees Offered

Bachelor of Science

Majors Offered

Sustainability (BS)

The Bachelor of Science in Sustainability is an interdisciplinary, cross-college major at the University of the Pacific. Graduates of our program will be equipped to examine issues of growing concern (including climate change, economic inequality, community wellness, biodiversity loss) through future leadership roles in wide-ranging sectors including engineering, business, community development, environmental science, and health and wellness. Students will develop a foundational understanding of sustainability concepts (people, planet, prosperity and their interrelationships) and the problem-solving and leadership skills needed to develop and implement innovative solutions.

Learning Outcomes

By the time a student graduates from this program, they will be able to:

1. Understand the multifaceted origins of sustainability challenges and the opportunities presented by their solutions.
2. Analyze sustainability challenges in the framework of dynamic and integrated environmental, economic, and social systems.
3. Embody sustainability principles to thrive personally and professionally.
4. Understand and ethically address issues in the context of thriving communities at multiple scales (local, regional, national, and global).
5. Use a systems approach to collect, analyze, and synthesize multi-disciplinary data to responsibly solve complex problems.
6. Effectively tell the stories of sustainability to a wide range of audiences across many media.
7. Collaborate on a team whose members collectively provide leadership and create an inclusive environment to implement lasting change.

Bachelor of Science Major in Sustainability

Students must complete a minimum of 120 units with a Pacific cumulative and major/program grade point average of 2.0 in order to earn the bachelor of science in sustainability.

I. General Education Requirements

For more details, see General Education (<https://catalog.pacific.edu/uop/generalinformation/generaleducation/>)

Minimum 28 units and 9 courses that include:

A. CORE Seminars (2 courses)

CORE 001	Problem Solving & Oral Comm	3
CORE 002	Writing and Critical Thinking	4

Note: 1) CORE Seminars cannot be taken for Pass/No Credit. **2)** Transfer students with 28 or more transfer credits taken after high school are exempt from both CORE seminars.

B. Breadth Requirement (7 courses, at least 3 units each)

At least one course from each of the following areas:

Artistic Process & Creation
Civic & Global Responsibility
Language & Narratives
Quantitative Reasoning
Scientific Inquiry
Social Inquiry
World Perspectives & Ethics

Note: 1) No more than 2 courses from a single discipline can be used to meet the Breadth Requirement.

C. Diversity and Inclusion Requirement

All students must complete Diversity and Inclusion coursework (at least 3 units)

Note: 1) Diversity and Inclusion courses can also be used to meet the breadth category requirements, or major or minor requirements.

D. Fundamental Skills

Students must demonstrate competence in:

Writing
Quantitative Analysis (Math)

Note: 1) Failure to satisfy the fundamental skills requirements by the end of four semesters of full-time study at the University is grounds for academic disqualification.

II. Breadth Requirement

Students must complete 60 units outside the primary discipline of the first major, regardless of the department who offers the course(s) in that discipline. (This includes general education courses, transfer courses, CPCE/EXTN units, internships, etc.).

III. Major Requirements

Students must complete all Sustainability core courses and four courses from a selected concentration.

Sustainability Core

SUST 010	Sustainability Seminar	1
SUST 044	Introduction to Sustainability	4
SUST 101	Systems of Sustainability	4
SUST 151	Methods in Sustainability	4
SUST 185	Capstone in Sustainability 1	3
SUST 186	Capstone in Sustainability 2	3
DATA 010	Excel	1
DATA 011	Tableau	1
DATA 012	Power BI	1
COOP 188	Career Search Essentials	1
GESC 103	Earth's Changing Climate	4
MATH 037	Introduction to Statistics and Probability	4

Select one of the following:

GESC 102	Introduction to Geographic Information Systems (GIS) and Spatial Analysis
DATA 053	Applications of Data Science

Select one of the following Human- Environment Interactions courses: 3-4

BIOL 035	Environment: Concepts and Issues
CIVL 171	Water and Environmental Policy
ENGL 126	Environmental Health and Literature
GESC 043	Environmental Science for Informed Citizens
HIST 052	John Muir and the Environmental Movement
POLS 174	Global Environmental Policy

Select one of the following Economic Drivers of Sustainability Decisions courses: 3-4

BUSI 107	Marketing Management
CIVL 173	Sustainable Engineering
ECON 157	Environmental and Natural Resource Economics

Select one of the following Social Challenges in Sustainability courses: 3-4

HLTH 080	Foundations of Public Health and Community Wellness
PHIL 035	Environmental Ethics
SOCI 041	Social Problems
SOCI 051	Introduction to Sociology
SOCI 111	Environmental Justice
SOCI 172	Diversity, Equity and Inequality

Select one of the following Storytelling courses: 3-4

COMM 050	Digital Communication
COMM 155	Persuasion
DATA 101	Data Visualization and Storytelling
ENGL 039	Introduction to Digital Humanities
ENGL 106	Content Engineering
HIST 080	Digital Narratives
MPRO 005	Principles of Storytelling

Communicating for Change Concentration (complete 4 courses)* 14-16

BUSI 175	Leadership and Change
COMM 045	Communication & Health
COMM 050	Digital Communication
COMM 117	Public Advocacy
COMM 134	Documentary Film Production
COMM 143	Intercultural Communication
COMM 155	Persuasion
DATA 101	Data Visualization and Storytelling
ENGL 039	Introduction to Digital Humanities
ENGL 106	Content Engineering
MPRO 003	Media Tools
MPRO 117	Film Production
HIST 080	Digital Narratives

Healthy Futures Concentration (complete 4 courses)* 14-16

BIOL 148	Emerging Infectious Diseases
COMM 045	Communication & Health
ENGL 126	Environmental Health and Literature
GESC 043	Environmental Science for Informed Citizens
HLTH 080	Foundations of Public Health and Community Wellness
HLTH 180	Epidemiology
HLTH 183	Global Health and Policy
POLS 174	Global Environmental Policy

SOCI 041	Social Problems
SOCI 051	Introduction to Sociology
SOCI 111	Environmental Justice
SOCI 125	Sociology of Health and Illness

Sustainable Communities Concentration (complete 4 courses)* 14-16

COMM 117	Public Advocacy
COMM 143	Intercultural Communication
ECON 125	Economic Development
HLTH 080	Foundations of Public Health and Community Wellness
HLTH 183	Global Health and Policy
POLS 104	Urban Government
POLS 174	Global Environmental Policy

SOCI 041	Social Problems
SOCI 051	Introduction to Sociology
SOCI 125	Sociology of Health and Illness
SOCI 161	Urban Society
SOCI 165	Social Organizations

Sustainable Design Concentration (complete 4 courses)* 14-16

ARTH 101	Design Thinking
ARTS 171	Advertising and Commercial Design
CIVL 132	Environmental Engineering
CIVL 136	Design of Water Quality Control Facilities
CIVL 138	Solid Waste Systems Design and Management
CIVL 164	Structural Timber Design
CIVL 165	Structural Steel Design
CIVL 166	Reinforced Concrete Design
CIVL 173	Sustainable Engineering
ECON 157	Environmental and Natural Resource Economics
ECPE 163	Energy Conversion
EMGT 142 & 142L	Design and Innovation and Design and Innovation Lab
EMGT 174	Engineering Project Management
EMGT 176	Systems Engineering Management
ENGR 045 & 045L	Materials Engineering and Materials Engineering Lab
IDEA 040	Engineering Design Thinking
PDEP 046	Material Processing and Selection
PDEP 057	AI for Designers

Sustainable Infrastructure Concentration (complete 4 courses)* 14-16

CIVL 132	Environmental Engineering
CIVL 136	Design of Water Quality Control Facilities
CIVL 138	Solid Waste Systems Design and Management
CIVL 164	Structural Timber Design
CIVL 165	Structural Steel Design
CIVL 166	Reinforced Concrete Design
CIVL 173	Sustainable Engineering
ECPE 163	Energy Conversion
EMGT 142 & 142L	Design and Innovation and Design and Innovation Lab
EMGT 174	Engineering Project Management
EMGT 176	Systems Engineering Management

Sustainable Planet Concentration (complete 4 courses)* 14-16

BIOL 035	Environment: Concepts and Issues
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BIOL 175	Ecology	
BIOL 176	Ecology and Conservation Biology	
CIVL 171	Water and Environmental Policy	
CIVL 173	Sustainable Engineering	
GESC 043	Environmental Science for Informed Citizens	
GESC 093	Special Topics	
GESC 148	Critical Zone Science	
HIST 052	John Muir and the Environmental Movement	
HLTH 180	Epidemiology	
PHIL 035	Environmental Ethics	
POLS 174	Global Environmental Policy	
Sustainability in Business Concentration (complete 4 courses)*		14-16
BUSI 053	The Legal and Ethical Environment of Business	
BUSI 107	Marketing Management	
BUSI 141	Marketing Research	
BUSI 147	Consumer Behavior	
COMM 143	Intercultural Communication	
ECON 071	Global Economic Issues	
ECON 121	International Trade	
ECON 125	Economic Development	
ECON 157	Environmental and Natural Resource Economics	
EMGT 142 & 142L	Design and Innovation and Design and Innovation Lab	
EMGT 170	Project Decision Making	
Design your own Concentration (select 4 courses in any of the concentrations):Design your own Concentration (select 4 courses in any of the concentrations) Experiential Learning:		14-16
Select one of the following:**		4
SUST 187	Internship	
SUST 197	Independent Research	

* Courses taken in the Sustainability core may not count for concentrations.

**Students can also complete the Civic Action or Sustainability Fellows program.

Note: Only courses graded with a C- or better will count in the major.

Intrdisp Sustainability Courses

SUST 010. Sustainability Seminar. 1 Unit.

This course provides students with a unified cohort experience and essential skills for success in the Sustainability major at Pacific. Students actively participate in curriculum planning, explore techniques for college and career success, and implement strategies for continuous improvement. #Students learn about research and internship opportunities and are introduced to campus resources.

SUST 044. Introduction to Sustainability. 4 Units.

This course will introduce you to the essential elements of sustainability. We will explore topics such as climate change, renewable energy, water conservation, agriculture, waste, green building, socially responsible business, ecosystem valuation, microlending, environmental justice, and alternative progress indicators, among others. We will investigate approaches to creating a sustainable future that foster environmental resilience, social equity, and economic growth. (GEGR)

SUST 101. Systems of Sustainability. 4 Units.

This course will develop your expertise in systems-analysis techniques across a wide range of applications. An interdisciplinary approach will be central to the example problems and solutions addressed in the course. This course also includes modeling approaches, from conceptual to quantitative, that will be used to understand complex systems and predict their behavior. Prerequisites: GESC 044 or SUST 044.

SUST 151. Methods in Sustainability. 4 Units.

Science and art of recognizing, describing and analyzing aspects of sustainability across multiple sectors. Lecture and laboratory course on the design and utilization of environmental monitoring, economic evaluation, social impact analysis, and their interrelationships. This course will introduce and develop the tools and techniques utilized in sustainability analysis and develop interdisciplinary approaches to complex problems. Also included is practice in community and stakeholder engagement. Prerequisite: SUST 101.

SUST 185. Capstone in Sustainability 1. 3 Units.

This first semester of the capstone course in sustainability is a culminating experience wherein a group of students synthesize their previous class work into one project. This first course of a two-course series focuses on project development and management while working on a community-proposed sustainability challenge. Students will work in groups that reflect multiple concentrations in the major to bring multiple perspectives and experiences to the team. One or more faculty members and/or professionals are involved depending upon the fields covered in the project. Prerequisites: Sustainability major and senior standing.

SUST 186. Capstone in Sustainability 2. 3 Units.

This second semester of the capstone course in sustainability is a culminating experience wherein a group of students synthesize their previous class work into one project. This second course of a two-course series focuses on project implementation and managing change while working on a community-proposed sustainability challenge. Students will work in groups that reflect multiple concentrations in the major to bring multiple perspectives and experiences to the team. One or more faculty members and/or professionals are involved depending upon the fields covered in the project. Prerequisite: SUST 185.

SUST 187. Internship. 1-4 Units.

SUST 197. Independent Research. 1-4 Units.