Sustainable Environmental Design

Bachelor of Arts (BA)

The Sustainable Environmental Design (SED) major recognizes that the emergent field of sustainability is growing rapidly in cross-sector activities from product design and manufacturing to governance and social equity. As the world population grows and urbanizes, the planning and design of systems that produce outcomes that are resilient, resource-efficient, healthy and socially just is profoundly important. The College of Environmental Design, with its long-standing, multidisciplinary focus on innovation and social equity is an ideal setting for an undergraduate major in SED, with a strong focus on *systems*.

The major offers students a critical understanding of the sustainability challenges facing regions in California and around the globe, and equips them with the technical and analytical tools key to solving sustainability problems that affect *people, products and places*. Graduates have many career paths and fields of graduate study open to them as a function of the diversity of topics and tools they will encounter and engage in SED. Students who complete this major will:

1. Understand the features and functions of systems that drive sustainability challenges
2. Analyze the relationships between technological systems, systems of governance, and production systems.
3. Identify interactions between sustainability, equity and social justice.

4. Use quantitative analysis to understand the potential of sensors and information dashboards to produce innovation in design and management approaches.
5. Leverage the potential of strategy, policy, business and institutions to adapt to and influence environmental, social and economic trends.

Program Overview

Features of the major include the following:

Core Classes designed exclusively for SED students include:

- **The *Gateway Course*, ENV DES 110,** is taken by all incoming SED first years and transfer students. The course is an opportunity to meet your cohort and explores varying interpretations of sustainability through the fields of design, economics, policy, law, and advocacy. Exploration of case studies and the core, *systematic aspects of sustainability* and its implications for environmental and design challenges are considered. Guest speakers will walk students through various career and life paths in the field of sustainability, and demonstrate how the field is being constructed and professionally explored and defined in diverse ways.
- **A *Design Frameworks course,* ENV DES 104** introduces SED majors to various aspects and approaches of the design process as it relates to socioenvironmental aspects of sustainability. Students will develop their skills to recognize and utilize design as both a thought process and set of communication tools and techniques. Topics of interest will include understanding and representing life cycles, material flows, spatial articulations, system processes and intervention strategies aimed at regime shifts and large-scale spatiotemporal phenomena. Students will develop skills in

representing complex topics and dynamics through approaches ranging from hand drawing to the use of specialized software.

- **A *Capstone Workshop,* ENV DES 106** builds student abilities to synthesize their knowledge and skills applied to real-world challenges that they scope, define and execute as a capstone project. Linking sustainability science and technology with urban form and social dynamics, the workshop requires independent and collaborative research towards an innovative capstone project, which students gain confidence developing and refining this project for use by (and/or in collaboration with) a professional partner or client.

SED students will gain technical skills related to various disciplines and coursework across CED departments. Classes stressing a technical orientation include:

- **A *methods and technology course*,** LD ARCH 188/GEOG C188 *Geographic Information Systems*. GIS has become a basic tool for a wide range of analytic tasks across all environmental design fields. The course addresses both GIS theory and applications, offering a dynamic analytical framework for gathering, integrating, interpreting and manipulating temporal and spatial data at various scales.
- **A hands-on applied methods course** LD ARCH 12*, Environmental Science for Sustainable Development,* introduces students to the scientific basis of sustainability as explored through the study of energy, water, food, natural resources and the built environment, with a focus on the application of scientific insights to sustainable development strategies. The course emphasizes hands-on learning through field-based exercises such as measurement of atmospheric particulate matter, micro-climates, channel form, aquatic insects and water quality, and direct observations of green infrastructure, green building methods, and urban agriculture.
- **A performance-oriented technology and design course** ARCH 140*, Energy and Environment,* examines building technologies, design strategies, best practices and standards related to building materials and processes, and presents the fundamentals of building science while recognizing the evolving nature of building technologies, energy efficiency, ecology, and responsible design.

SED students will also engage in coursework geared towards understanding social systems and design insights related to environmental justice and equity, including:

- **Examination of the values and experiential dimensions of design,** LDARCH 140, *Social and Psychological Factors in Open Space Design***,** considers ways that various processes and projects involving public space come to matter in individual lives and the communities and societies in which they exist. The course critically examines issues related to design as a nexus of communication, social equity and the environmental needs of various communities.
- **Urban sustainability-focused coursework**, including CYPLAN 119, *Planning for Sustainability*, examines how the concept of sustainable development applies to cities and urban regions and gives students insight into a variety of contemporary urban planning issues. The course combines lectures, discussions, student projects, and guest appearances by leading practitioners in Bay Area sustainability efforts. Ways to coordinate goals of environment, economy, and equity at different scales of planning are addressed, including the region, the city, the neighborhood, and the site.

NOTE: SED majors do not have access to Architecture studio courses (ARCH 11A, 11B, 100A-D, 102A-B). Architecture studio courses are reserved for Architecture majors only.

Admission to the Major

Students must declare one of the CED majors at the time of application to the college; however, current UC Berkeley students may apply to change into CED. Transfer applicants must complete two years worth of lower division coursework to be considered for admission to CED. For information regarding admission to the major for freshmen, transfer students, and current students who wish to change majors or colleges, please see the College of Environmental Design (CED) page (http://guide.berkeley.edu/undergraduate/colleges-schools/environmental-design/#choosingamajortext) in this Guide or the CED website (http://ced.berkeley.edu/admissions/undergraduate/).

Sustainable Design Minor Program

The Department of Architecture and the Department of Landscape Architecture and Environmental Planning jointly offer a Sustainable Design Minor program (http://guide.berkeley.edu/undergraduate/degree-programs/sustainable-design/). This minor program is open to undergraduate students at UC Berkeley except those in the Sustainable Environmental Design Major.

In addition to the University, campus, and college requirements, listed on the College Requirements tab, students must fulfill the below requirements specific to their major program.

The Sustainable Environmental Design major requirements differ by students' admit year to UC Berkeley. The major requirements listed below are the most recent. In the Berkeley Academic Guide Archive (http://guide.berkeley.edu/archive/), refer to the year you were admitted to UC Berkeley for your major requirements.

General Guidelines

1. Courses taken to fulfill lower division major requirements may also be used to fulfill Seven-Course Breadth.
2. All lower division courses taken in fulfillment of major requirements must be completed with a grade of C- or better. A minimum grade point average (GPA) of 2.0 must be maintained in upper and lower division courses used to fulfill the major requirements.
3. A minimum overall GPA of 2.0 for all courses taken at UC Berkeley is required for graduation.
4. Courses used to fulfill an upper division major requirement may not simultaneously fulfill a breadth requirement.
5. Up to two upper division courses taken at another institution, including an approved study abroad program, may be applied to the major requirements below (if transferable and approved in advance).

For information regarding residency requirements and unit requirements, please see the College Requirements tab.

Summary of Major Requirements

Lower Division Requirements: Six Courses

Upper Division Sustainable Environmental Design Core: Nine Courses

Lower Division Major Requirements: Freshman and Sophomore Year

ENV DES 110	Designing Sustainability	3
LD ARCH 12	Environmental Science for Sustainable Development	4
MATH 16A	Analytic Geometry and Calculus	3-4
or MATH 1A	Calculus	
STAT 2	Introduction to Statistics (or higher)	4
or STAT C8	Foundations of Data Science	
PHYSICS 7A	Physics for Scientists and Engineers	4
or PHYSICS 8A	Introductory Physics	
ENVECON C1/ ECON C3	Introduction to Environmental Economics and Policy	4

Upper Division Sustainable Environmental Design Core (Courses Inside CED)

ARCH 140	Energy and Environment	4
ARCH 142	Sustainability Colloquium	2
or ARCH 242	Sustainability Colloquium	
CY PLAN 119	Planning for Sustainability	3-4
or CY PLAN 140	Urban Design: City-Building and Place-Making	
ENV DES 100	The City: Theories and Methods in Urban Studies	4
ENV DES 102	Climate Change and City Planning: Adaptation and Resilience	3
ENV DES 104	Design Frameworks	3
ENV DES 106	Sustainable Environmental Design Workshop	4
LD ARCH 140	Social and Psychological Factors in Open Space Design	3
LD ARCH/GEOG C188	Geographic Information Science	4

For College Requirements, please refer to the College of Environmental Design (http://guide.berkeley.edu/undergraduate/colleges-schools/environmental-design/#collegerequirementstext).

While each student's plan will vary depending on interests, we recommend student's follow the plan below. The Sustainable Environmental Design major requirements differ by students' admit year to UC Berkeley. The major requirements listed below are the most recent. In the Berkeley Academic Guide Archive (http://guide.berkeley.edu/archive/), refer to the year you were admitted to UC Berkeley for your major requirements. Students should see their adviser if they are interested in applying for graduate school, studying abroad, attending summer school, or pursuing a minor or second major.

For more detailed information regarding the courses listed below (e.g., elective information or GPA requirements), please see the Major Requirements tab.

			Freshman	
	Fall Units		Spring Units	
ENV DES 1		3	ENV DES 5	4
ENV DES 110		3	Reading & Composition A	4-6

	Fall Units		Spring Units
LD ARCH 12 (Breadth #1: BIO SCI)	4	Breadth #2 or Physics 8A (prereq Math 16A)	3
MATH 16A or 1A	3-4	University Elective, if needed	2-4
	13-14		**13-17**
			Sophomore
	Fall Units		**Spring Units**
ECON C3 (Breadth #3: SOC-BHV SCI)	4	STAT 2	4
Reading & Composition B	4	ENV DES 104	3
Breadth #4	3-4	PHYSICS 8A (Breadth #6: PHYS SCI or Breadth)	4
Breath #5	3-4	Breadth #7	3-4
	14-16		**14-15**
			Junior
	Fall Units		**Spring Units**
ARCH 142	2	ARCH 140	4
LD ARCH C188	4	CED Upper Div Non-Major #1	2-4
CY PLAN 119 or 140	3-4	ENV DES 104 (for transfer students)	3
ENV DES 110 (transfer students)	3-4	LD ARCH 140	3
	12-14		**12-14**
			Senior
	Fall Units		**Spring Units**
ENV DES 102	3	ENV DES 100	4
CED Upper Div Non-Major #2	3-4	ENV DES 106	4
CED Upper Div Non-Major #3	3-4	University Elective	2-4
University Elective	3-4	University Elective	2-4
	12-15		**12-16**

Total Units: 102-121

Students must complete 120 units to graduate.

Learning Goals of the Major

1. Understand the features and functions of systems that drive sustainability challenges.
2. Analyze the relationships between technological systems, systems of governance, and production systems.
3. Identify interactions between sustainability, equity and social justice.
4. Use quantitative analysis to understand the potential of sensors and information dashboards to produce innovation in design and management approaches.
5. Leverage the potential of strategy, policy, business and institutions to adapt to and influence environmental, social and economic trends.

Major Maps help undergraduate students discover academic, co-curricular, and discovery opportunities at UC Berkeley based on intended major or field of interest. Developed by the Division of Undergraduate Education in collaboration with academic departments, these experience maps will help you:

- **Explore** your major and gain a better understanding of your field of study

- **Connect** with people and programs that inspire and sustain your creativity, drive, curiosity and success

- **Discover** opportunities for independent inquiry, enterprise, and creative expression

- **Engage** locally and globally to broaden your perspectives and change the world

- **Reflect** on your academic career and prepare for life after Berkeley

Use the major map below as a guide to planning your undergraduate journey and designing your own unique Berkeley experience.

View the Sustainable Environmental Design Major Map PDF. **(**https://ue.berkeley.edu/sites/default/files/sustainable_environmental_design.pdf**)**

The CED Office of Undergraduate Advising provides a wide array of programmatic and individual advising services to prospective and current students as well as to students in other colleges who are pursuing CED minors or taking CED courses. The professional advising team assists students with a range of issues including course selection, academic decision-making, achieving personal and academic goals, and maximizing the Berkeley experience.

Advising Staff

Architecture Major Advisor: Mel Barbers
250 Bauer Wurster Hall
mbarbers@berkeley.edu

Landscape Architecture Major Advisor: Kristian Dawson
250 Bauer Wurster Hall
kristian.dawson@berkeley.edu

Sustainable Environmental Design Major Advisor: Heather Grothjan
250 Bauer Wurster Hall
heather.grothjan@berkeley.edu

Urban Studies Major Advisor: Kristian Dawson
250 Bauer Wurster Hall
kristian.dawson@berkeley.edu

College Evaluator: Heather Grothjan
250 Bauer Wurster Hall
heather.grothjan@berkeley.edu

Undergraduate Advising Director: Omar Ramirez
250 Bauer Wurster Hall
oramirez@berkeley.edu

Associate Dean for Undergraduate Studies: Kyle Steinfeld
345 Bauer Wurster Hall
ksteinfe@berkeley.edu

Advising Office

Fall/spring: Monday through Friday, 10 to noon (office opens at 9 a.m.) & 1 to 4 p.m.
Summer: Monday through Friday, 10 to noon & 1 to 3 p.m.

Address

Office of Undergraduate Advising
College of Environmental Design
250 Bauer Wurster Hall #1800
University of California

Berkeley, CA 94720-1800
cedadvising@berkeley.edu

CED Career Services

The CED Career Services Center (CSC) offers personalized career counseling, a yearly CED Career Fair, and a wide variety of professional development workshops on topics such as licensure, internships, and applying for graduate school. To schedule an appointment with the Career Counselor or for more information on CED CSC, please click here (http://ced.berkeley.edu/ced/students/career/).

Office of Undergraduate Advising (http://ced.berkeley.edu/ced/students/undergraduate-advising/)

- Current Students (https://ced.berkeley.edu/advising/undergraduate-advising/undergraduate-students/)
- Newly-Admitted Students (https://ced.berkeley.edu/advising/undergraduate-advising/undergraduate-students/newly-admitted-students/)
- CED Major & Minor Requirements (https://ced.berkeley.edu/advising/undergraduate-advising/undergraduate-students/major-minor-requirements/)
- Graduation and Commencement (https://ced.berkeley.edu/advising/undergraduate-advising/undergraduate-students/graduation-commencement/)
- Undergraduate Advising Services (https://ced.berkeley.edu/advising/undergraduate-advising/)
- Articulation (https://ced.berkeley.edu/admissions/undergraduate-admissions/articulation/)
- CED Undergraduate Program Policies (https://ced.berkeley.edu/advising/undergraduate-advising/undergraduate-students/policies/)
- Forms and Documents (https://ced.berkeley.edu/advising/forms-documents/)

Mission

The College of Environmental Design (CED) Office of Undergraduate Advising:

- **Supports** students holistically as they earn their degree,
- **Advocates** for just and equitable policies and practices,
- **Connects** current and prospective students with resources and opportunities,
- **Fosters** a sense of belonging and community.

Advising Values

The CED Office of Undergraduate Advising aspires to the following core values:

Student-Centered

We provide support services centered on student self-actualization. We aim to hold a welcoming space in which students are encouraged to explore their minds and their hearts, do their best work, realize their talents and passions, and achieve their goals. We put the student voice and experience first.

Justice & Equity

We actively seek to eradicate all forms of individual and institutionalized discrimination and oppression. We aim to provide students with an equitable experience in complete appreciation of their identities, economic status, and immigration status.

Health & Well-Being

We strive to build and sustain a culture in which our community can thrive in all aspects of life: intellectual, emotional, social, physical, occupational, spiritual and environmental.

Courage & Vulnerability

By learning from our own experiences, educating ourselves on developments in the field, collaborating with our communities, and taking strategic risks, we aim to improve our advising services and the student experience. We are committed to continuous self-reflection, growth, and development.

Student Groups and Organizations

The college provides opportunities for students to be involved in student chapters of professional organizations such as the American Institute of Architects (AIAS), the American Society of Landscape Architects (ASLA) as well as other student groups like the Chican@/Latin@ Architecture Student Association (CASA), Global Architecture Brigades, and more. For information regarding student groups, please see the Getting Involved page of the CED website (http://ced.berkeley.edu/ced/students/undergraduate-advising/getting-involved/#orgs).

Study Abroad

The College of Environmental Design (CED) encourages all undergraduates in the college to study abroad. Whether students are interested in fulfilling general education requirements, taking courses related to their major/career, or simply living and studying in a country that is of interest to them, the department will work with students to make it happen. For information about study abroad programs, please see the Berkeley Study Abroad website (http://studyabroad.berkeley.edu/).

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Prizes and Awards

CED offers a number of annual prizes, awards, scholarships, fellowships, and grants to its currently enrolled students. Some of these prizes and awards are college-wide and some are geared toward students in specific majors. For general information regarding CED prizes and awards, including application instructions and a deadline calendar, please click here (http://ced.berkeley.edu/ced/students/prizes/).

CED Events and Exhibits Calendar

CED and Wurster Hall are home to a variety of events, lectures, and exhibitions that welcome professors, professionals, and friends to the college to discuss and celebrate the community and professions. Through events and media, the College of Environmental Design is constantly creating ways to keep the college connected and up-to-date.

To view this calendar, please click here (http://ced.berkeley.edu/events-media/events/).

CED on Facebook **(**https://www.facebook.com/groups/59611725522/**)**

CED Lecture Series

The Departments of Architecture, City and Regional Planning, and Landscape Architecture and Environmental Planning each sponsor lecture series, which offers students the opportunity to hear internationally-acclaimed speakers. These speakers often also participate in classes and seminars as part of their visit to campus. For a schedule of speakers and events in these lecture series, please see the CED website (http://ced.berkeley.edu/events-media/lecture-series/).

Research Opportunities, Internships, Public Service, and Volunteer Opportunities

Check out the CED Office of Undergraduate Advising website (http://ced.berkeley.edu/ced/students/undergraduate-advising/) for additional opportunities.