Sustainable Environmental Design

Bachelor of Arts (BA)

The Sustainable Environmental Design major recognizes that the emergent, multidisciplinary field of sustainability science is growing rapidly. As the world population urbanizes, the planning and design of resilient, resource-efficient, healthy, and socially just cities and metropolitan regions is profoundly important. The College of Environmental Design, with its long-standing expertise in sustainable urbanism and design, is an ideal setting for an undergraduate major in sustainable environmental design, with a focus on the built environment. The sustainable environmental design major recognizes that the emergent, multidisciplinary field of sustainability science is growing rapidly.

The major offers students a critical understanding of the sustainability challenges facing urban regions in California and around the globe and equips them with the technical, analytic, and design tools key to devising creative solutions. Graduates have many career paths and fields of graduate study open to them. Students who complete this major will:

1. Understand the application of physical, biological, and social science in the design of sustainable cities and metropolitan regions.
2. Understand sustainable urban technologies and design strategies.
3. Comprehend issues of equity and social justice as they relate to sustainable cities and regions.
4. Evaluate and monitor the present state and future potential of built environments in terms of sustainability.
5. Comprehend the implications of policy and institutions and their potential to shape future sustainable cities and regions.

Program Overview

Features of the major include the following:

- A set of upper division courses on energy and environment, deep green design, the nature of cities, planning for sustainability, ecological analysis, and sustainable cities and landscapes.
- A series of highly recommended area concentrations allowing students to specialize in a variety of aspects of sustainability such as economics, business, and policy, society, culture, and ethics, resources and environmental management, or design and technology.
- A capstone workshop course, ENV DES 106, Sustainable Environmental Design Workshop. Linking sustainability science and technology with urban form and social dynamics, the workshop requires independent and collaborative research with an external client organization to offer innovative strategies for sustainable environmental design.

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

Sustainable design implies making decisions at various scales of the built environment (buildings, communities, land use patterns, urban support systems) in ways that support environmental quality, social equity, and economic vitality. The undergraduate minor in sustainable design is jointly offered by the Department of Architecture and the Department of Landscape Architecture and Environmental Planning, but it also includes interdisciplinary courses across campus. Open to all majors at UC Berkeley except Sustainable Environmental Design.

A letter grade of C- or higher in ENV DES 1, LD ARCH 1, or LD ARCH 12 (or a 3 or higher in AP Env Sci) is required to declare the minor. To declare, submit the CED Request to Add Minor Form (https://ced.berkeley.edu/students/undergraduate-advising/forms-documents), available on the CED website. When completing the final requirements for the minor, submit the CED Minor Completion Form (https://ced.berkeley.edu/students/undergraduate-advising/forms-documents).

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.

General Guidelines

1. All lower division courses taken in fulfillment of major requirements must be completed with a grade of C- or better.
2. Courses taken to fulfill lower division major requirements may also be used to fulfill Seven-Course Breadth.
3. A minimum grade point average (GPA) of 2.0 must be maintained in upper and lower division courses used to fulfill the major requirements.
4. A minimum overall GPA of 2.0 for all courses taken at UC Berkeley is required for graduation.
Courses used to fulfill an upper division major requirement may not simultaneously fulfill a breadth requirement.

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: Five Courses**

**Upper Division Sustainable Environmental Design Core: Nine Courses**

Recommended Sustainable Environmental Design Area Concentrations: Four Courses

#### Lower Division Major Requirements: Freshman and Sophomore Year

- **LD ARCH 12** Environmental Science for Sustainable Development
- **MATH 16A** Analytic Geometry and Calculus
- **or MATH 1A** Calculus
- **STAT 2** Introduction to Statistics (or higher)
- **or STAT C8** Foundations of Data Science
- **PHYSICS 7A** Physics for Scientists and Engineers
- **or PHYSICS 8A** Introductory Physics

Select one of the following:

- **ECON 1** Introduction to Economics
- **ECON 2** Introduction to Economics–Lecture Format
- **ENVECON C1/ECON C3** Introduction to Environmental Economics and Policy

#### Upper Division Sustainable Environmental Design Core (Courses Inside CED)

- **ARCH 140** Energy and Environment
- **ARCH 242** Sustainability Colloquium
- **or ARCH 142** Sustainability Colloquium
- **CY PLAN 119** Planning for Sustainability
- **ENV DES 100** The City: Theories and Methods in Urban Studies
- **ENV DES 102** Critical Debates in Sustainable Urbanism
- **ENV DES 106** Sustainable Environmental Design Workshop
- **LD ARCH 110** Ecological Analysis
- **or LD ARCH 130** Sustainable Landscapes and Cities
- **LD ARCH/GEOG C188** Geographic Information Systems

**Recommended Sustainable Environmental Design Area Concentrations (4 courses)**

The intent of recommended area courses is to provide students with opportunities to deepen their knowledge about specific issues in sustainability. Each of the area courses focuses on an essential aspect of sustainability with the premise that urban sustainability is a multi-dimensional problem and sustainable environments emerge from the intersection of technology, design, economics, policy, and societal change.

#### Economics, Business and Policy

- **CY PLAN 113A** Economic Analysis for Planning
- **CY PLAN 113B** Community and Economic Development
- **CY PLAN 115** Urbanization in Developing Countries
- **ENVECON 100** Microeconomic Theory with Application to Natural Resources
- **ENVECON C151** Economic Development
- **ENVECON/IAS C175** The Economics of Climate Change
- **ENE,RES 190** Seminar in Energy and Resources Issues
- **EPSM 60** Environmental Policy, Administration, and Law
- **ENE,RES 166** Natural Resource Policy and Indigenous Peoples
- **ENE,RES 168** Political Ecology
- **ENE,RES 169** International Environmental Politics
- **ENE/EDUC C193A** Environmental Education
- **PUB POL 182** Environment and Technology from the Policy and Business Perspective
- **UGBA 107** The Social, Political, and Ethical Environment of Business
- **UGBA 180** Introduction to Real Estate and Urban Land Economics

#### Society, Culture and Ethics

- **ANTHRO 137** Energy, Culture and Social Organization
- **ARCH 110AC** The Social and Cultural Processes in Architecture & Urban Design
- **ARCH 133** Architectures of Globalization: Contested Spaces of Global Culture
- **CY PLAN 118AC** The Urban Community
- **ENE,RES C100** Energy and Society
- **ENE,RES 101** Ecology and Society
- **EPSM 151** Society, Environment, and Culture
- **EPSM 155** Course Not Available
- **ENE,RES 161** Environmental Philosophy and Ethics
- **ENE,RES 163AC** Environmental Justice: Race, Class, Equity, and the Environment
- **ENE/EDUC C167/ PB HLTH C160** Environmental Health and Development
- **EPSM 168** Political Ecology
- **LD ARCH 140** Social and Psychological Factors in Open Space Design
- **LD ARCH 141AC** Course Not Available

#### Environmental Planning and Management

- **ENE,RES 102** Quantitative Aspects of Global Environmental Problems
- **EPS 170AC** Course Not Available
- **EPSM 50AC** Introduction to Culture and Natural Resource Management
- **ENE,RES 102C** Resource Management
- **ENE,RES 102D** Climate and Energy Policy
- **ENE,RES 117** Urban Garden Ecosystems
- **INTEGBI 152** Environmental Toxicology
**Sustainable Design Minor Requirements**

### General Guidelines

1. A letter grade of C- or higher in ENV DES 1, LD ARCH 1, or LD ARCH 12 (or a 3 or higher in AP Env Sci) is required to declare the minor. To declare, students must submit the CED Request to Add Minor Form (https://ced.berkeley.edu/undergraduate-advising/forms-documents), available on the CED website.

2. Each course used to fulfill minor requirements must be completed with a letter grade of C- or above.

3. Students must earn a 2.0 GPA in the upper division requirements for the minor.

4. Any course used in fulfillment of minor requirements may also be used to fulfill major and upper division CED non-major requirements.

5. Courses used to fulfill a breadth requirement may also be used to satisfy minor requirements.

6. Students may apply the non-CED version of a CED cross-listed course towards the minor.

7. Students may use up to two courses taken abroad to fulfill upper division minor requirements, with faculty approval of the individual courses.

###上 Division (5 courses)

Select five courses from the following; a minimum of two courses must be selected from CED courses and a minimum of two courses selected from non-CED courses.

#### CED courses

- ARCH 105 Deep Green Design
- ARCH 140 Energy and Environment
- ARCH 149 Special Topics in Energy and Environment (Minimum 2 units)
- ARCH 169 Special Topics in Construction Materials (Minimum 2 units)
- ARCH 240 Advanced Study of Energy and Environment
- ARCH 241 Research Methods in Building Sciences
- ARCH 242 Sustainability Colloquium
- ARCH 243 Natural Cooling: Sustainable Design for a Warming Planet
- ARCH 244 The Secret Life of Buildings
- ARCH 245 Daylighting
- ARCH 249 Special Topics in the Physical Environment in Buildings (Minimum 2 units)
- CY PLAN 114 Introduction to Urban and Regional Transportation
- CY PLAN 115 Urbanization in Developing Countries
- CY PLAN 140 Urban Design: City-Building and Place-Making
- CY PLAN 254 Sustainable Communities
- CY PLAN C256 Healthy Cities
- ENV DES 102 Critical Debates in Sustainable Urbanism
- ENV DES 198 Directed Group Study (Building Sustainability section and Leadership in Sustainable Design section)
- LD ARCH 103 Energy, Fantasy, and Form
- LD ARCH 110 Ecological Analysis
- LD ARCH 111 Plants in Design
- LD ARCH 122 Hydrology for Planners
- LD ARCH 130 Sustainable Landscapes and Cities
- LD ARCH 138A Course Not Available
- LD ARCH C18 Geographic Information Systems
- LD ARCH 225 Course Not Available

#### Non-CED courses

- ANTHRO 137 Energy, Culture and Social Organization
- CIV ENG 103 Introduction to Hydrology
- CIV ENG 107 Climate Change Mitigation
- CIV ENG 113N Course Not Available
- CIV ENG 292A Technologies for Sustainable Societies
- ENE,RES C10 Energy and Society
- ENE,RES 101 Ecology and Society
- ENE,RES 102 Quantitative Aspects of Global Environmental Problems
- ENE,RES 175 Water and Development
- ENE,RES 243 Natural Cooling: Sustainable Design for a Warming Planet

### Lower Division

Select one course from the following:

- AP Environmental Science, Passing Score of 3, 4, or 5
- ENV DES 1 Introduction to Environmental Design
- LD ARCH 1 Drawing a Green Future: Fundamentals of Visual Representation and Creativity
- LD ARCH 12 Environmental Science for Sustainable Development

### Design and Technology

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>ARCH 11A</td>
<td>Introduction to Visual Representation and Drawing (Formerly ENV DES 11A)</td>
</tr>
<tr>
<td>ARCH 11B</td>
<td>Introduction to Design (Formerly ENV DES 11B)</td>
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<tr>
<td>ARCH 105</td>
<td>Deep Green Design (Formerly ENV DES 105)</td>
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<tr>
<td>ARCH 122</td>
<td>Principles of Computer Aided Architectural Design</td>
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<tr>
<td>ARCH 130</td>
<td>Introduction to Architectural Design Theory and Criticism</td>
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<tr>
<td>ARCH 149/249</td>
<td>Special Topics in Energy and Environment</td>
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<tr>
<td>ARCH 160</td>
<td>Introduction to Construction</td>
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<tr>
<td>CY PLAN/ARCH 111</td>
<td>Introduction to Housing: An International Survey</td>
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<tr>
<td>CY PLAN 114</td>
<td>Introduction to Urban and Regional Transportation</td>
</tr>
<tr>
<td>CY PLAN 140</td>
<td>Urban Design: City-Building and Place-Making</td>
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<tr>
<td>ENE,RES 175</td>
<td>Water and Development</td>
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<td>ENV DES 104</td>
<td>Design Frameworks</td>
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<tr>
<td>GEOG 125</td>
<td>The American City</td>
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<tr>
<td>INFO 146</td>
<td>Course Not Available</td>
</tr>
<tr>
<td>LD ARCH 1</td>
<td>Drawing a Green Future: Fundamentals of Visual Representation and Creativity</td>
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</tbody>
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Students who have a strong interest in an area of study outside their major often decide to complete a minor program. These programs have set requirements and are noted officially on the transcript in the memoranda section, but they are not noted on diplomas.
Special topics courses will be evaluated each semester by student request. Please ask the relevant staff adviser if a course has been reviewed and/or approved. ARCH 149, ARCH 169, and ARCH 249 must be minimum 2 units.

The ARCH 242 colloquium and ENV DES 198 may only count as a third CED course, and may be taken Pass/No Pass for either 1 or 2 units.

CED Upper Div Non-Major #3 3-4

Total Units: 101-119

Students must complete 120 units to graduate.

**Learning Goals of the Major**

1. Understand the application of physical, biological, and social science in the design of sustainable cities and metropolitan regions
2. Understand sustainable urban technologies and design strategies
3. Comprehend issues of equity and social justice as they relate to sustainable cities and regions
4. Evaluate and monitor the present state and future potential of built environments in terms of sustainability
5. Comprehend the implications of policy and institutions and their potential to shape future sustainable cities and regions
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 Adviser Rhommel Canare
250 Wurster Hall
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510-642-4944

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Associate Dean for Undergraduate Studies Renee Chow
382D Wurster Hall
rchow@berkeley.edu (rchow@berkeley.edu)

Advising Hours

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 Wurster Hall #1800
University of California
Berkeley, CA 94720-1800
510-642-4943

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)

- Newly-Admitted Students (http://ced.berkeley.edu/ced/students/undergraduate-advising/newly-admitted-students)
- Current Students (http://ced.berkeley.edu/ced/students/undergraduate-advising/continuing-students)
- Graduation and Commencement (http://ced.berkeley.edu/ced/students/undergraduate-advising/graduation-commencement)
- Services and Contract (http://ced.berkeley.edu/ced/students/undergraduate-advising/services-contract)
- Articulation (http://ced.berkeley.edu/ced/students/undergraduate-advising/articulation)
- Policies and Resources (http://ced.berkeley.edu/ced/students/undergraduate-advising/policies-resources)
- Forms and Documents (http://ced.berkeley.edu/ced/students/undergraduate-advising/forms-documents)

Mission

The College of Environmental Design (CED) Office of Undergraduate Advising helps students graduate in a timely way with a meaningful educational experience at Berkeley. In alignment with the College’s Vision and Principles, the Office of Undergraduate Advising collaborates with CED faculty, deans, and student service units across campus toward the common objective of supporting students as they achieve their educational and career goals. Goals include the following:

- Attracting a highly-motivated, diverse pool of applicants
- Connecting students with resources that match their goals and aspirations
- Supporting the development and transformation of undergraduates as they become educated, active, and socially just citizens of the world
- Preparing graduates who are uniquely qualified and highly sought after in their field of choice.

Advising Values

Student Success. Above all, the College dedicates itself to maximizing student potential and to helping students succeed in their university experiences. Advisers encourage students to explore their minds and their hearts, challenge them to do their best work, and help them realize their talents and passions and achieve their goals.

Equity & Inclusion. CED is committed to creating an inclusive environment in which any individual or group can be and feel welcomed, respected, supported, and valued. Advisers aspire to provide fair treatment, access, opportunity, and advancement for all students and to identify and eliminate barriers that prevent the full participation of all.

Health & Well-Being. CED collaborates with campus partners to keep the community healthy by helping students balance the physical, intellectual, emotional, social, occupational, spiritual, and environmental aspects of life.

Advising Excellence. In all that it does, the College strives to deliver personalized advising services of the highest quality by continuously educating itself on developments in the field and to evaluate, improve,
and streamline services to support students in obtaining the best education and experience possible.

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 Chicano/Latino 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).

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. For further information, please see the CED Career Services website (http://ced.berkeley.edu/ced/students/career).

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/596111725522)
CED on Twitter (https://twitter.com/CEDNews)
Cal Design Lab
The Cal Design Lab at Wurster Hall is an experimental studio space to promote hands-on, interdisciplinary design activities. Faculty and students from UC Berkeley’s many schools and departments can come together at the Cal Design Lab to work on critical design challenges. The goal of the lab is to be a nexus for design research and practice and to facilitate discourse that transcends different design disciplines.

For further information, please see the Cal Design Lab’s website (http://ced.berkeley.edu/research/cal-design-lab).

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).

CED Connects
CED CONNECTS (http://ced.berkeley.edu/students/ced-connects) is an online LinkedIn networking resource connecting CED students with alumni who might provide advice, information, and support. As a student, you can gain perspective on your long-term career goals; acquire advice on balancing education, career, and extracurricular activities; and receive honest feedback and encouragement.

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.