

# Sustainable Environmental Design Major Handbook

College of Environmental Design  
University of California Berkeley

**2016- 2017**

For Students Admitted to University of California Berkeley  
Fall 2016 and Spring 2017

Download this handbook at:

[http://ced.berkeley.edu/ced/students/undergraduate-advising/  
forms-documents/](http://ced.berkeley.edu/ced/students/undergraduate-advising/forms-documents/)

## SUSTAINABLE ENVIRONMENTAL DESIGN AT BERKELEY

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 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

Features of the major include:

- The *gateway course*, LD ARCH 12, Environmental Design 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 this knowledge to sustainable development strategies.
- A *critical approaches course*, ENV DES 102 Critical Debates in Sustainable Urbanism. The course challenges students to think critically about the idea of sustainability, develop critiques of current sustainable urbanism/design practice, and envision the institutional and behavioral changes required for a more sustainable future.
- A *methods/technology course*, LD ARCH /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.
- 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; 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.

**Minors.** See the CED website for information on undergraduate minors offered by the College of Environmental Design.

## UNDERGRADUATE ADVISING

### FACULTY ADVISORS

#### Undergraduate Major Head

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#### Associate Dean for Undergraduate Studies

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#### CED Career Counseling

220 Wurster Hall

#### Fall/Spring Hours

Drop-in Hours  
Tuesdays and Thursdays 1-4 p.m.

Appointments  
Thursdays 9 a.m.-12 p.m.

Appointments:  
<http://tinyurl.com/CEDCareerCounseling>

### STAFF ADVISORS

#### Office of Undergraduate Advising

250 Wurster Hall  
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#### Sustainable Environmental Design Advisor

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#### Director of CED Undergraduate Advising

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#### College Evaluator (transfer work evaluation)

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#### CED Personal Counseling in Wurster

For information and to schedule an appointment in Wurster Hall:

<http://ced.berkeley.edu/ced/students/counseling-psychological-services>

## DEGREE REQUIREMENTS

### Summary of Degree Requirements

- A. University and Berkeley Campus Requirements
- B. CED College Requirements
- C. Sustainable Environmental Design Major Requirements
- D. General Electives (optional to reach 120 units)
- E. Unit and Semester Requirements

#### A. University and Berkeley Campus Requirements

All undergraduate students at UC Berkeley must complete:

- Entry-Level Writing
- American History and Institutions
- American Cultures

#### B. CED College Requirements

1. Reading & Composition A & B. See the CED Advising website for more information on R&C course placement. Must be completed with a letter grade of C- or better.
2. Seven Course Breadth Requirement. Up to two CED courses or courses cross-listed with CED may be used to complete Seven Course Breadth (students admitted to UCB FL 13 and later only). See paragraph below for detail.
  - Social and Behavioral Sciences—choose one: ECON 1 or 2 Intro to Economics or ECON C3 Intro to Environmental Economics & Policy (also fulfills Lower Division Major Requirement)
  - Physical Science--Physics 7A or 8A (also fulfills Lower Division Major Requirement). Must be taken for a letter grade.
  - Biological Science—LD ARCH 12 (also fulfills Lower Division Major Requirement). Must be taken for a letter grade.
  - International Studies
  - Arts and Literature
  - Historical Studies
  - Philosophy and Values

For students admitted to UC Berkeley FL 13 and later, only Lower Division ENV DES courses (ENV DES 1, 4A, 4B, 4C) and Lower Division Major Requirements may simultaneously fulfill Seven Course Breadth. A course used to fulfill an Upper Division Major Requirement may not also satisfy Seven Course Breadth. Upper Division CED courses that are not fulfilling another upper division requirement may fulfill Seven Course Breadth.

No more than two CED courses or courses cross-listed with CED may be used to complete Seven Course Breadth. No more than two courses from any one academic department may be used to satisfy breadth requirements.

A Seven Course Breadth class that is also being used to complete another CED requirement must be completed with a letter grade of C- or better.

Only one of the remaining Seven Course Breadth may be taken on a Passed/Not Passed basis.

For a list of courses that fulfill the Seven Course Breadth Requirement, see <http://ls-advise.berkeley.edu/requirements/breadth7.html>.

CED students may use any second semester language course to fulfill the International Studies (IS) breadth requirement (exception: students may *not* use their native language to fulfill IS breadth). IS may also be satisfied by participation in the UC Education Abroad Program or a recognized equivalent program.

CED students may apply high school exam credit (Advanced Placement, International Baccalaureate, A-Level Exam) towards many of the above requirements. See the CED website section on High School Exam Credit for more information: <http://ced.berkeley.edu/ced/students/undergraduate-advising/forms-documents/>

Students who have been away from the University for five or more years are held to the college and major requirements that are in place when they re-enroll at UCB.

3. Lower Division Environmental Design\* (3 courses total) Must be completed with a letter grade of C- or better.
  - ENV DES 1 People and Environmental Design
  - ENV DES 4A Design and Activism, 4B Global Cities, 4C Future Ecologies (complete 2 of 3)

Lower Division ENV DES courses (ENV DES 1, 4A, 4B, 4C) and Lower Division Major Requirements may simultaneously fulfill Seven Course Breadth. However, no more than two CED courses or courses cross-listed with CED may be used to complete Seven Course Breadth.

\*Lower Division ENV DES requirement applies to all students admitted to UC Berkeley as freshmen beginning FL 2013. This includes students admitted to other colleges at UC Berkeley who enter CED through the Change of College process.

4. Upper Division College of Environmental Design Courses Outside SED (3 courses total). *Must be completed with a letter grade of C- or better.*

Three upper division CED courses must be taken outside the SED major (nine units minimum). Each of the three courses must be at least two units and must be within the 100-299 course number range (197, 198, 199 are excluded). This requirement can be fulfilled with courses in Architecture, Environmental Design, Visual Studies, Landscape Architecture, and City and Regional Planning but may not be one of the eight core SED courses. A course used to fulfill this requirement may *not* also be used to fulfill Seven Course Breadth.

## C. Sustainable Environmental Design Major Requirements

1. Lower Division Major Requirements (5 courses total):  
*These courses must be completed with a letter grade of C- or better.* Courses taken to fulfill Lower Division Major Requirements may also be used to fulfill Seven Course Breadth.

LD ARCH 12: Environmental Science for Sustainable Development

MATH 16A or 1A: Analytic Geometry and Calculus

STAT 2, C8 or higher: Introduction to Statistics

PHYS 7A or 8A: Introductory Physics

ECON 1, 2 or ENVECON C1/ ECON C3: Introduction to Economics or Introduction to Environmental Economics and Policy

2. Upper Division Sustainable Environmental Design Core – Inside College of Environmental Design courses (8 courses total):

You must earn a 2.0 average in Upper Division Major Requirements. A course used to fulfill an Upper Division Major Requirement may not also be used to fulfill Seven Course Breadth.

- ENV DES 100: The City: Theories and Methods (SP)
- ENV DES 102: Critical Approaches to Sustainable Urbanism & Design (FL)
- ENV DES 106: Sustainable Environmental Design Workshop (SP)
- ARCH 140: Energy and Environment (SP)
- ARCH 142 or 242: Sustainability Colloquium; must take for 2 units (FL)
- CY PLAN 119: Planning for Sustainability (FL)
- LD ARCH 110: Ecological Analysis (FL) (recommended, not required)
- LD ARCH 130: Sustainable Cities & Landscapes (SP)
- LD ARCH /GEOG C188: Geographic Information Systems (FL)

3. Recommended Sustainable Environmental Design Area Concentrations

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 (3)
- CY PLAN 113B: Community and Economic Development (3)
- CY PLAN 115: Urbanization in Developing Countries (4)
- ENVECON 100: Microeconomic Theory with Application to Natural Resources (4)
- ENVECON/INTAREAST C175: The Economics of Climate Change (4)
- ENE,RES 151: Politics of Energy and Environmental Policy (4)
- ENE,RES 190: Seminar in Energy, Environment, Development and Security Issues (3)
- ESPM 60: Environmental Policy, Administration, and Law (4)
- ESPM 166: Natural Resource Policy and Indigenous Peoples (4)
- ESPM 168: Political Ecology (4)
- ESPM 169: International Environmental Politics (4)
- ESPM C193A/EDU C193A: Environmental Education (3)
- PUB POL 182: Environment & Technology from the Policy & Business Perspective (4)
- UGBA 107: The Social, Political, and Ethical Environment of Business (3)
- UGBA 180: Introduction to Real Estate and Urban Land Economics (3)

**Society, Culture and Ethics**

- ANTHRO 137: Energy, Culture and Social Organization (4)
- ARCH 110AC: The Social and Cultural Basis of Design (4)
- ARCH 133: Architectures of Globalization: Contested Spaces of Global Culture (3); check Class Schedule - not offered on a regular basis.
- CY PLAN 118AC: The Urban Community (4)
- ENE,RES 100: Energy and Society (4)
- ENE,RES 101: Ecology and Society (3)
- ESPM 155: Sociology of Natural Resources (4)
- ESPM 168: Political Ecology (4)
- ESPM 151: Society, Environment, and Culture (4)
- ESPM 161: Environmental Philosophy and Ethics (3)

- ESPM 163AC: Environmental Justice: Race, Class, Equity, & the Environment (4)
- ESPM C167/PUBHEAL C160: Environmental Health and Development (4)
- LD ARCH 140: Social and Psychological Factors in Open Space Design (3)
- LD ARCH 141AC: The American Landscape: Multicultural Difference and Diversity. (3)
- SOCIOL 123: Corporate Social Responsibility and Green Business (4)
- SOCIOL 128: Society and the Environment (4)

### **Environmental Planning and Management**

- ENE,RES 102: Quantitative Aspects of Global Environmental Problems (4)
- EPS 170AC: Crossroads of Earth Resources and Society (4)
- ESPM 50AC: Introduction to Culture and Natural Resource Management (4)
- ESPM 102C: Resource Management (4)
- ESPM 102D: Resource and Environmental Policy (4)
- ESPM 117: Urban Garden Ecosystems (4)
- INTEG BIO 152: Environmental Toxicology (4)
- LD ARCH 222: Hydrology for Planners (4) \*instructor consent required
- LD ARCH 289: Applied Remote Sensing (3) \*instructor consent required

### **Design and Technology**

- ARCH 11A (formerly ENV DES 11A): Introduction to Visual Representation and Drawing. (4)
- ARCH 11B (formerly ENV DES 11B): Introduction to Design. (5)
- ARCH 105: Deep Green Design. (4)
- ARCH 122: Principles of Computer Aided Architectural Design. (4); check Class Schedule - not offered on a regular basis.
- ARCH 130: Introduction to Architectural Design Theory and Criticism. (4)
- ARCH 149/249: Special Topics in Energy and Environment. (1-4)
- ARCH 160: Introduction to Construction. (4)
- CY PLAN/ARCH C111: Introduction to Housing: An International Survey. (3)
- CY PLAN C114/CEE154: Introduction to Urban and Regional Transportation. (3)
- CY PLAN 116: Urban Planning Process--The Undergraduate Planning Studio. (4)
- CY PLAN 140: Urban Design: City-Building and Place-Making. (3)
- ENE,RES 175: Water and Development. (4)
- GEOG 125: The American City. (4)
- INFO 146: Foundations of New Media. (3)
- LD ARCH 1: Drawing a Green Future: Fundamentals of Visual Representation and Creativity. (4)

Students who have been away from the University for five or more years are held to the college and major requirements that are in place when they re-enroll at UCB.

### **D. General Electives**

Students may need to take additional courses to reach the 120 units required for graduation.

### **E. Unit and Semester Requirements**

The Bachelor of Arts degree in the College of Environmental Design requires the successful completion of at least 120 semester units of courses subject to certain rules:

- A maximum of 16 units of Special Studies coursework (courses numbered 97, 98, 99, 197, 198, or 199) is allowed towards the 120 units; a maximum of four is allowed in a given semester; only upper division students (60 or more units completed) may enroll in 197, 198, or 199 coursework.
- A maximum of 4 units of Physical Education from any school attended will count towards the 120 units.
- Students may receive unit credit for courses graded P (including P/NP units taken through EAP) up to a limit of one-third of the total units taken and passed on the Berkeley campus at the time of graduation.
- No more than 60 units from a single department can be used towards this 120 minimum.

### **Unit Minimum**

CED students must enroll in at least 12 units each fall and spring semester. *(Students entering UCB with no prior units would need to complete 15 units per semester to graduate in four years.)*

### **Semester Limit**

Students admitted as freshmen must graduate within eight fall/spring semesters at UC Berkeley. Students admitted as transfer students must graduate within four fall/spring semesters at UC Berkeley. EAP and UCDC count towards this semester limit; summer session, UC Extension, and study abroad through non-UC programs do not. Students approved for simultaneous degrees in two colleges may be granted an additional semester.

### **Senior Residence Requirement**

After reaching senior status (with 90 semester units earned), students must be registered in the College of Environmental Design and must complete at least 24 of the remaining 30 units in at least two semesters in residence at UC Berkeley as CED students. To count as residence, a semester must consist of at least six passed units.. [Intercampus Visitor](#), [Education Abroad Program](#), [UC Berkeley-Washington Program](#), and [UC Berkeley Extension](#) units are **not** applied to this requirement.

Students may use [Berkeley Summer Sessions](#) to satisfy one semester of the Senior Residence Requirement, provided that six units of course work are completed.

### **Modified Senior Residence Requirement**

Participants in the [UC Education Abroad Program](#) (EAP) or the [UC Berkeley-Washington Program](#) may meet a Modified Senior Residence Requirement by completing 24 (excluding EAP) of their final 60 semester units in residence. At least 12 of these 24 units must be completed after senior status (90 units) is reached.

Most students automatically fulfill the residence requirement by attending classes here for four years. In general, there is no need to be concerned about this requirement, unless you go abroad for a semester or year or want to take courses at another institution or through University Extension during your senior year. In these cases, you should make an appointment to see an adviser to determine how you can meet the Senior Residence Requirement.



## SAMPLE GRADUATION PLAN

### FRESHMAN

Fall Semester	Units	Spring Semester	Units
R&C A	4-6	R&C B	4
ENV DES 1: People and Environmental Design	3	ENV DES 4A/B/C*	3
LD ARCH 12 / BS Breadth #1: Env Science for Sustainable Development	4	PHYS 8A / PS Breadth #2	4
MATH 16A	3	Breadth #3	3-4
TOTAL	14-16	TOTAL	14-15

### SOPHOMORE

Fall Semester	Units	Spring Semester	Units
ENV DES 4A/B/C*	3	Econ 1 / SBS Breadth #6	4
STAT 2	4	ENV DES 4A/B/C*	3
Breadth #4	3-4	Breadth #7	3-4
Breadth #5	3-4	Elective	1-4
TOTAL	13-15	TOTAL	12-15

\*Complete 2 of 3 from ENV DES 4A, 4B, 4C

### JUNIOR

Fall Semester	Units	Spring Semester	Units
ENV DES 102: Critical Debates in Sustainable Urbanism	3	ARCH 140: Energy and Environment (Physics 8A is prerequisite)	4
LD ARCH 110: Ecological Analysis (recommended, not required)	3	LD ARCH 130: Sustainable Landscapes and Cities	4
CY PLAN 119: Planning for Sustainability	3	Recommended SED Area Concentration #2	2-4
Recommended SED Area Concentration #1	2-4	CED Upper Div Non-Major #2	2-4
CED Upper Div Non-Major #1	2-4		
TOTAL	13-17	TOTAL	12-16

### SENIOR

Fall Semester	Units	Spring Semester	Units
ARCH 142 or 242: Sustainability Colloquium	2	ENV DES 100: the City: Theories and Methods in Urban Studies	4
LD ARCH /GEOG C188: Geographic Information Systems	4	ENV DES 106 (Capstone): Sustainable Environmental Design Workshop	4
Recommended SED Area Concentration #3	2-4	Recommended SED Area Concentration #4	2-4
CED Upper Div Non-Major #3	2-4	Elective, if needed to reach 12 units	0-2
TOTAL	12-14	TOTAL	12

NOTE: Students must complete 120 units to graduate.

While each student's plan will vary depending on interests, the junior and senior course plans are fixed for SED majors. See your adviser if you are interested in applying for graduate school, studying abroad, attending summer school, pursuing a minor or second major, etc.

### GRADE REQUIREMENTS

- A 2.0 UC GPA is required for graduation.
- A 2.0 GPA within the major is required at time of graduation.

## GRADUATING WITH HONORS

To graduate with distinction, you must meet the grade-point average (GPA) requirement and complete at least 50 units in residence at Berkeley (this may include UCB Extension XB units and up to 20 units from UCDC or EAP), of which 43 units must be letter-graded (not including physical education activities courses). *Transfer students must make sure they complete 50 units at Berkeley to qualify for honors.*

Your GPA in all letter-graded courses taken at Berkeley must be equal to or higher than the GPA established for honors in the year in which you graduate. These GPA cut-offs change slightly each year and are posted on the CED website.

## DEADLINES AND POLICIES

See the CED advising website for the most up-to-date information:

<http://ced.berkeley.edu/ced/students/undergraduate-advising/>

## CED MINORS

Minors offered by the college of Environmental Design include:

- Architecture
- City & Regional Planning
- Environmental Design and Urbanism in Developing Countries
- Geospatial Information Science and Technology (College of Natural Resources for paperwork and advising)
- History & Theory of Landscape Architecture & Environmental Planning
- History of the Built Environment
- Social & Cultural Factors in Design
- Sustainable Design (not available to SED majors)

Minors generally consist of five upper division courses plus any lower division prerequisites to those courses. Any course taken for your minor may also be used to fulfill major and upper division CED non-major requirements. Courses used to fulfill a breadth requirement may also be used to satisfy a minor requirement. Students may use the non-CED version of an approved CED cross-listed course to complete a minor. See [CED Minors](#) on the web for more information.

The *CED Request to Add Minor* form is available in the Minors section of [CED Forms & Documents](#) and [is](#) required to declare a minor. The *CED Minor Completion Form* must be completed by your last semester if you want your CED minor to show on your transcript.

CED students may pursue minors in any of the other undergraduate schools and colleges at UC Berkeley.

## ACADEMIC PROGRESS REPORT (APR)

Track your degree progress via your Academic Progress Report in [CalCentral](#) ([calcentral.berkeley.edu](http://calcentral.berkeley.edu)). If you notice any errors in your Academic Progress Report, notify your CED adviser immediately.

## **COST OF ATTENDANCE ADJUSTMENT (FINANCIAL AID BUDGET APPEALS)**

Students are allowed to submit a request to the Financial Aid Office to increase the size of their standard budget for certain expenses that are above the standard amounts: housing, a computer (once every three years), uninsured medical/dental/optical expenses, and child care.

In addition, CED students who are enrolled in a studio course may submit a Cost of Attendance Adjustment request (“budget appeal”) for additional loan or work-study to help cover studio-related expenses. To request additional financial aid to help with studio expenses, you will need to include with your appeal the “Estimated Undergrad Studio Expenses for Financial Aid Appeals” document, available on the CED website: <http://ced.berkeley.edu/ced/students/undergraduate-advising/forms-documents/>

For more information on the Cost of Attendance Adjustment, see <http://financialaid.berkeley.edu/cost-attendance-adjustment>.

## **UC BERKELEY FOOD PANTRY**

The Food Pantry provides emergency nonperishable food to UC Berkeley students while they explore campus food security resources. <http://pantry.asuc.org/>

## **CED PRIZES AND AWARDS**

One of the many financial resources available to CED students is the Prizes and Awards program. For more information see <http://ced.berkeley.edu/ced/students/prizes>

## **CED CONNECTS**

[CED CONNECTS](http://ced.berkeley.edu/students/ced-connects/) is an online LinkedIn networking resource connecting CED students with alumni who can 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. CED Connects on LinkedIn provides a powerful tool to let students and alumni broaden their network and networking skills. To sign up: <http://ced.berkeley.edu/students/ced-connects/>