

EDES REPORT

"We're all students when it comes to sustainability...."

*-Ilze Jones, AIA, FASLA, Jones & Jones
Architects & Landscape Architects*

ECOLOGICAL DESIGN EDUCATION SURVEY

The Ecological Design Education Survey (EDES) is a multi-campus student assessment of core ecological design disciplines at West Coast institutions of higher education. The EDES Report summarizes student perceptions of educational offerings in ecological design based on over 200 student respondents from 35 programs in architecture, landscape architecture, planning and related disciplines.

According to respondents of the 2006 Ecological Design Education Survey, advanced study in the emerging and interdisciplinary field of ecological design is in strong demand.

With no qualitative tool available to rate education programs in ecological design, students are at a loss to evaluate and compare ecological design educational offerings at institutions of higher education. This type of assessment is needed to help students decide where and how to pursue advanced professional study in ecologically oriented design and planning programs.

The Ecological Design Education Survey is a step toward filling this gap.

Previous ecological design education research efforts have primarily targeted faculty, administrators and practitioners; however, to date, student input has largely been lacking. This first edition of the EDES Report is a starting point for subsequent assessments of eco-design education, which may include additional disciplines and a broadened geographic scope. The hope is that the EDES Report will provide students with a valuable resource when choosing advanced study and that it will spur institutions to integrate, expand and improve their offerings in ecological design education.



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EDES REPORT

ECOLOGICAL DESIGN EDUCATION SURVEY

The EDES project was initiated by the Alliance for Ecological Design Education (AEDE) and developed with support from project advisors and partner organizations (listed on page 8).

AEDE is a coalition of students, professionals and faculty working to promote ecological design education, research and practice at campuses across the Northwest. The group was initiated by students from the University of Washington's Forum on Conservation and Urban Sustainability (UW Focus), the University of Oregon's Ecological Design Center (EDC) and other eco-design advocacy groups at Northwest institutions.

For more information on how to donate, become a member or volunteer with the EDES project, please contact:

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Photo Sources, Front Cover (clockwise from top left): Kevin Parkhurst; Kevin Parkhurst; Lost Valley Education Center; Chris Chatto

EXECUTIVE SUMMARY

There is a Demand for Ecological Education

Students have clearly started learning about ecological design without waiting for programs, but they are eager for more - more courses, more course content, more program and degree options.

- **Interest across disciplines - and beyond disciplinary boundaries:** The survey drew a balanced slate of respondents - and uniformly high interest - from students in all three surveyed disciplines: architecture, landscape architecture, and planning. Many students in environmental studies also voiced deep professional and academic interest in ecological design training. Overall, students are pushing for improvements in existing disciplines as well as increased interdisciplinary opportunities.

- **Many significant - and similar - barriers to progress:** Substantial challenges and obstacles continue to slow tangible progress, from the adoption of new material into courses and collaboration among disciplines, to slow emergence of truly innovative programs. Fortunately, these challenges do not differ a great deal from institution to institution and program to program, so there are good prospects for sharing strategies.

- **The time is now:** Despite existing barriers and shortcomings in individual programs and institutions, participants overwhelmingly expressed the urgent need and ample opportunity for fundamental change.

Recommendations

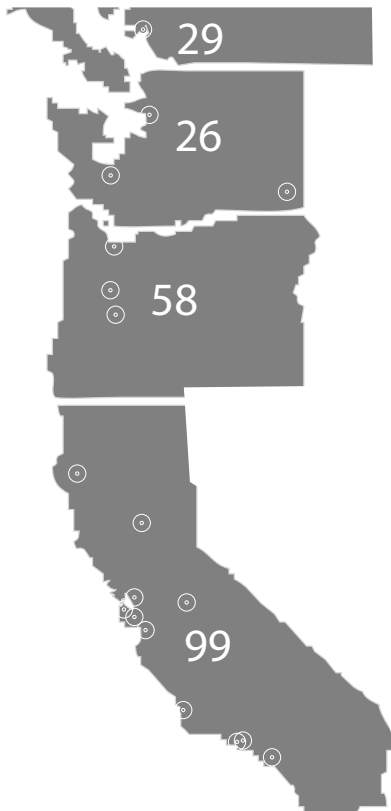
- Initiate certificate, emphases, minor programs, and dual degree programs in eco-design.

- Designate a member of the faculty to serve as a central source of information about the ecological design resources and opportunities available to students.

- Integrate ecological design concepts into core courses and develop new electives – including studios and design-build opportunities – related to ecological design and dual degree programs in eco-design.

SURVEY RESPONDENTS

By Geography

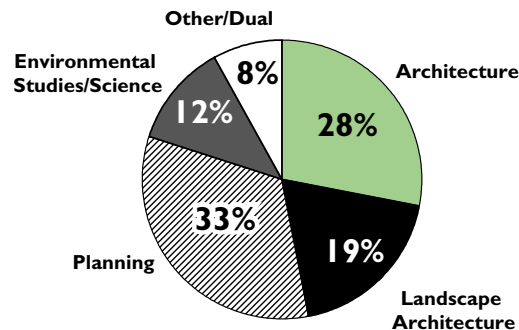


217 Respondents
*5 outside of survey area

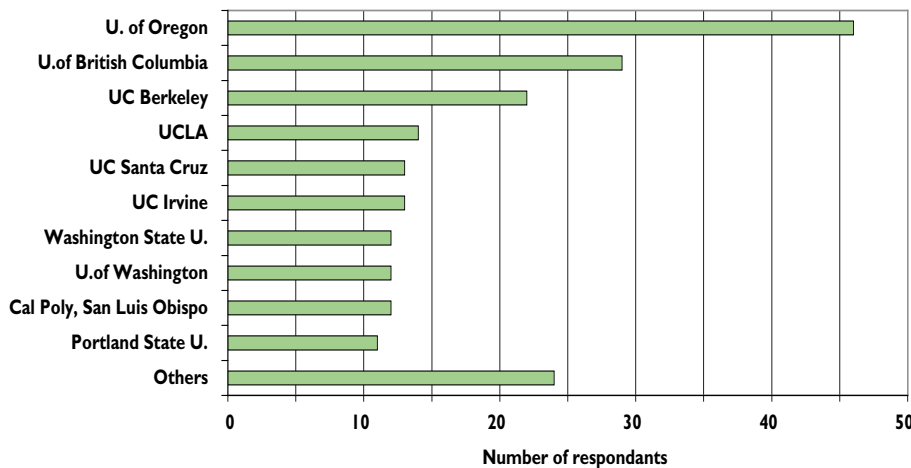
217 students in various ecological design disciplines at targeted accredited institutions took the Ecological Design Education Survey in Spring of 2006. To see a copy of the survey questions and results visit <http://www.aashe.org/aede>

West Coast institutions were selected based on offerings of accredited programs in architecture, landscape architecture, planning and related programs in California, Oregon, Washington and British Columbia. The geographic region was determined based on limited resources and availability of information on accredited schools in the Pacific Northwest and California.

By Discipline



By Academic Institution



Other responding institutions in the study area include: University of California, Davis; University of Southern California; California State University, San Jose; New School of Architecture; Cal Poly, Pomona; California State University, Humboldt; and The Evergreen State College.

Research Methodology

Survey Development: The EDES editors developed a web-based survey in consultation with advisors to poll students in design and planning programs, using the following models:

- US News & World Reports;
- Cal Poly, San Luis Obispo Sustainable Environmental Design Education (SEDE) survey,
- Metropolis Survey of Sustainability Education,
- Beyond Grey Pinstripes; and
- Ecological Design and Building Schools

The survey was designed to assess student perceptions of ecological design education opportunities at their respective institutions; student interest and knowledge of ecological design practices; as well as challenges and successes in this area.

Survey Dissemination: Surveys were disseminated to 45 accredited architecture, landscape architecture, and planning programs and related programs. Program coordinators and relevant student organizations were asked to forward the survey to students in their departments. Respondents that listed their email address to receive the results were prompted to forward the survey to other interested students.

Data Analysis: Preliminary results were analyzed as a whole and by discipline. Qualitative responses were categorized by major themes and summarized. Although the survey team would have liked to analyze data by institution or program, there were insufficient responses to evaluate results at this level of detail. Final analysis was conducted under the direction of report advisors.



URBAN ECOLOGY LAB

U. of Washington, Seattle, WA

The Urban Ecology Research Lab is an interdisciplinary research group at the University of Washington. Grounding their research in an urban ecology framework, the lab studies urban landscapes as a complex set of alternative development patterns (i.e. urban form, land use distribution and connectivity) that generate different effects on the amount and distribution of built and natural land cover. The Urban Eco Lab explores relationships between land use and land cover by analyzing landscape patterns and ecological conditions using several ecological indicators, (e.g. such as macro-invertebrates, birds, and shellfish) and linking urban patterns to the ecological resilience of urban ecosystems. Using the Puget Sound Region as a scientific laboratory, students researchers apply a variety of techniques such as advanced GIS and Remote Sensing to study landscape change and build a land-cover change model of this region. Links from research to practice are made by developing guidelines using the best available science. This assists planners and decision makers in making more informed decisions about where and how to develop and how this impacts the environment.

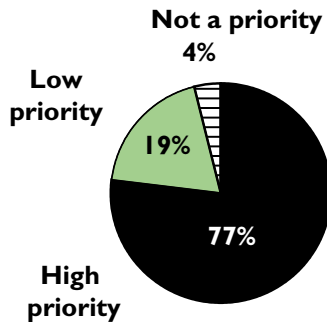
The Urban Ecology Lab is also a supporting participant in interdisciplinary doctoral education in Urban Ecology, through Fellowships funded by support from the National Science Foundation and Integrative Graduate Education in Research Trainship (IGERT) grants.

For more information, visit their website at www.urbaneco.washington.edu or contact: Marina Alberti, Associate Professor, Department of Urban Design and Planning, University of Washington E-Mail: malberti@u.washington.edu

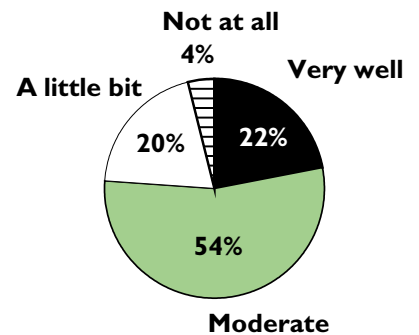
THE KNOWLEDGE GAP

Ecological design education is clearly an important priority for students, and although many are versed in the concepts associated with this discipline, many don't feel like they have a deep understanding of the key issues, strategies and practices of this field.

STUDENT INTEREST IN ECO-DESIGN

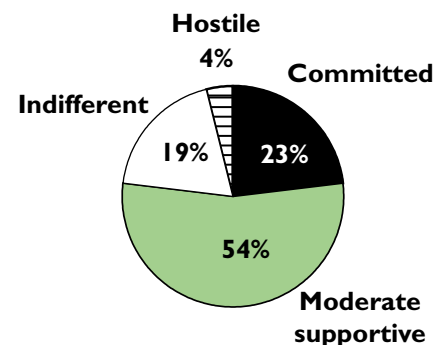


STUDENT KNOWLEDGE OF ECO-DESIGN



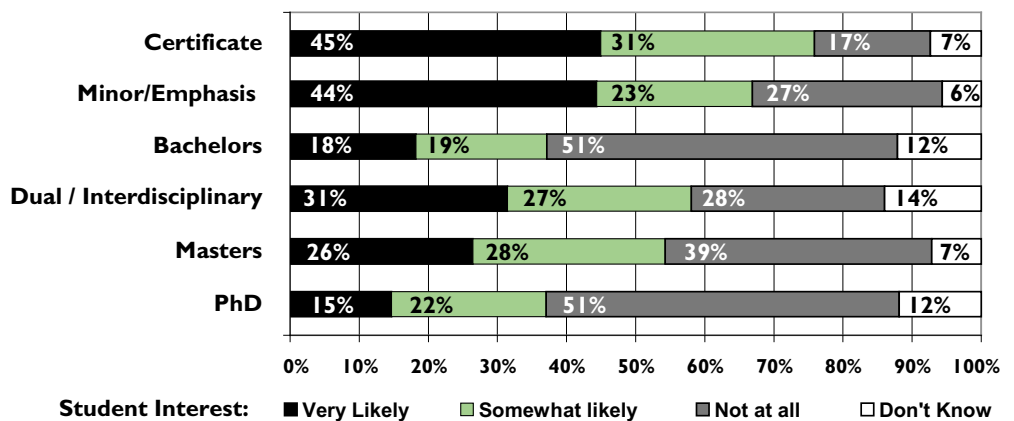
STUDENT PERCEPTION OF FACULTY INTEREST IN ECOLOGICAL DESIGN

Students noted a lack of faculty interest, knowledge, and support as a major challenge to ecological design education at surveyed institutions. Additional challenges include too little time within programs to pursue ecological design, and poor communication and integration among related disciplines and programs.



STUDENT INTEREST IN ADVANCED STUDY

What is the potential market for degree and non-degree programs focused on ecological design? EDES found significant student interest in a variety of scenarios — especially in certificate and minor programs, but also in other models:



When asked the reason for their interest in ecological design education, 94% of respondents listed personal interest or enrichment and 64% cited potential for increased job opportunities.

COVERAGE OF ECO-DESIGN STRATEGIES

The survey asked students to rank coverage of eco-design strategies in core and elective courses. Strategies were primarily based on the U.S. Green Building Council and LEED Certification criteria, including very general categories (i.e. sustainable building, water management, energy, and sustainable land use/site design) to very specific topics (e.g. adaptive reuse, life-cycle impact analysis, innovative wastewater technologies, daylighting and shading, reduced site disturbance, etc.).

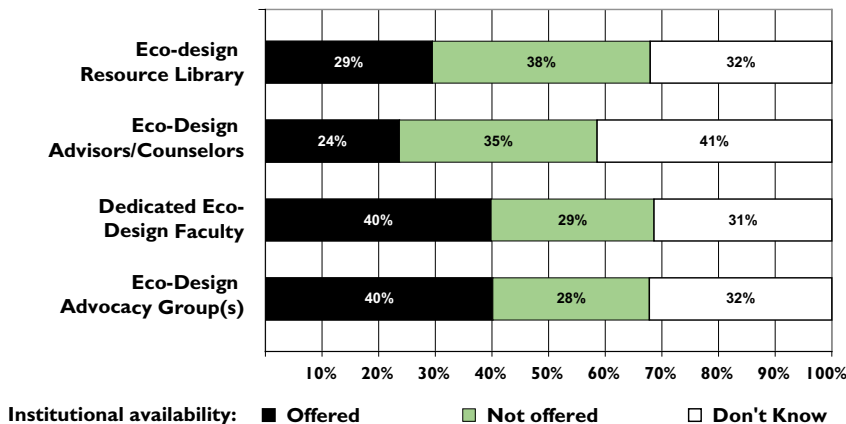


Photo source: UBC Community Studio

Students' rankings indicate inconsistent and incomplete coverage of specific ecological design strategies and respondents found many individual topics receiving little or no treatment in core and elective courses. While some strategies are well covered (e.g., transit-oriented development for planners and architects; water management for landscape architects; and daylighting and shading, building orientation and regionally appropriate design for architects), a wide range of recognized strategies - for water reuse, energy efficiency, site selection and other aspects of green design and building -- are not appearing prominently in existing curriculum.

EXTRA-CURRICULAR OPPORTUNITIES

Students were asked to identify extra-curricular opportunities at their institution. Various student and university initiatives (including advocacy groups and resource centers/libraries) were identified at many institutions, a testimony to student interest beyond the coverage available in the curriculum. Encouraging to note is the number of eco-design advisors/counselors, although, equally disheartening is the number of students unaware of the resources available to them.



COMMUNITY STUDIO

U. of British Columbia, Vancouver

Since 2003, Community Studio has been providing front-end design services and ongoing assistance to community groups and non-profit organizations. This student-initiated, and student-run, design outreach group at the University of British Columbia helps community groups advance their local design projects by offering free assistance in the form of technical advice and research, graphic and drawing skills, conceptual designs, site analysis workshops, and charrette facilitation. The group formed in response to the numerous requests for project assistance the landscape architecture program receives, and to the strong interest among students to gain hands-on experience through community service.

More than eleven projects, entirely voluntary and extracurricular to the degree requirements of the MLA program have been completed, including urban community gardens, public art, school site planning, and a roof garden project, among others. Although these projects tend to fall outside of the schedule or scope of the program's curriculum and research initiatives, one-third of the students in the MLA program have participated since 2004. Projects selection is based on social or environmental goals, and on their match to the learning interests of individual students. Student project teams form around common interests and work collaboratively with the client group, asking for help from peers or from professional mentors as specific tasks arise.

The group has been successful at collaborating with students from multiple disciplines including architecture, landscape architecture and urban planning. Most of the design projects have helped community groups with fundraising and outreach, and others have become the basis for student thesis projects. The group was recently honored with an award from the American Society of Landscape Architects for their community service.

For more information, visit the ASLA website at: www.asla.org/awards/2005/students/winner13.html



Photo source: Christopher Chatto

STUDIO PLUS

U. of Oregon, Eugene, OR

Studio Plus is a recent course integrating sustainability and design at the University of Oregon (U of O). Provided through the Department of Architecture, the course provides a supplement to design studios by focusing on ecological design issues such as energy and daylighting.

Student exercises work in conjunction with outside studio projects, as they examine issues of building use, climate, and form. Not only do they learn appropriate responses for their particular problem, but they also see how their peers' different building and climates affect the choice of environmental strategies. The intent of the course is not only to help students become more adept in ecological design, but provide for transfer of information as students present their new insights and knowledge as part of their outside studio courses. Students have the option to take this elective course at a range of credit levels, allowing them to adjust their technical research to comfortably fit within their course load.

The idea for the course was proposed by students at the U of O Ecological Design Center (sponsors of the College's annual HOPES Ecological Design Conference, <http://edc.uoregon.edu>), as a way to receive instruction on sustainable technologies and integrate these ideas into their studio design projects. Professor G.Z. "Charlie" Brown and staff from the Energy Studies in Buildings Laboratory developed and taught the course through the first year. Interest among both faculty and students continues to be high and ongoing teaching now rotates among faculty, allowing different areas of expertise to become the class focus.

For more information, contact:
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 346-3656

CHALLENGES

Responding to an open-ended invitation to describe challenges to ecological design education at their institution, students listed a wide array of challenges. The 57 responses tended to cluster around 4 interrelated challenges:

- **Faculty** – Among the faculty as a whole, students feel that there is a lack of support for and knowledge about ecological design.
- **Courses** – Ecological design is not well integrated into existing courses and courses focused specifically on ecological design aren't offered.
- **Time** – Program requirements leave too little time for students to obtain the ecological design education they are seeking.
- **"Silos"** - Poor communication across related disciplines or departments and difficulty taking courses outside of home department or program hinders student learning about ecological design.
- **Other challenges** mentioned include: small program size, insufficient student preparation, and poor modeling of ecological design in campus operations.

Fortunately, the most common challenges described by students are not insurmountable. The responses suggest that institutions have an opportunity to significantly improve the ecological design education opportunities available to students by offering interdepartmental course development workshops in ecological design to design faculty. Such workshops would boost faculty knowledge about ecological design and help them infuse ecological design into their existing courses, thereby helping to mitigate the time constraints many students mentioned. Moreover, these workshops would build communication and enhance possibilities for collaboration among related departments. Similar workshops, notably the Ponderosa Project at Northern Arizona University and the Piedmont Project at Emory University, have been highly successful in reorienting the undergraduate curriculum around sustainability.



Photo Source: copyright Kevin Parkhurst

IN THE STUDENTS' WORDS . . .

Selected quotes from an open-ended question on institution successes and challenges in eco-design:*

"[T]here is not enough of a direct connection between practices being explored at the university and those that are being implemented by local design firms." Landscape Architecture student

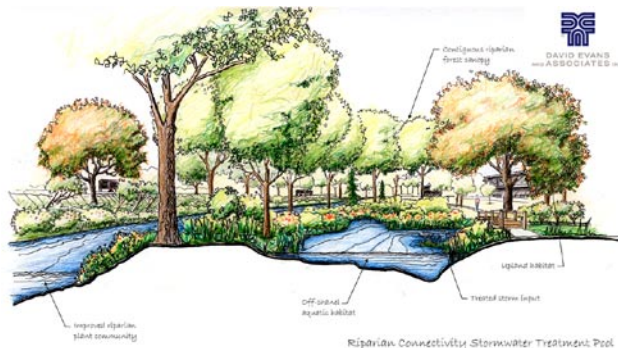
"There is great interest in ecological and environmental design here. However, there are a limited number of avenues for students to pursue. Nearly all of my knowledge of eco-design stems from a single course I took, wherein my group explicitly chose to focus on the development of green building on the campus." Environmental Studies student

"...the community is very supportive of Eco-design. This rubs off a little on the students." Landscape Architecture student

Without a dedicated set of course offerings, and the opportunities to attend related workshops, conferences and field trips, students in this department interested in ecological design/sustainability need to look to other interested students, outside organizations and the few interested faculty members to augment their formal education... professional Architecture programs have few electives and the time demands of the studios do not make it easy to broaden the educational experience." Architecture student

"[T]hinking about how we design to be in concert with the environment, with an awareness of our consumptive practices, should be part and parcel of EVERYthing we learn." Other/dual degree student

"Many of the faculty are interested in ecological design education but few students are aware of how to access these faculty since they are spread out between departments and although encouraged, there are few interdisciplinary options available due to lack of space for non-department students." Planning student



Ecological Infrastructure - A proposed stormwater concept for a sustainable redevelopment project also provides critical floodplain relief for a rapidly urbanizing watershed. Source: Concept and graphic provided by David Evans and Associates, Inc., Portland, OR.

*Student quotes from the following schools (in no particular order): University of Oregon, University of British Columbia, UC Los Angeles, UC Berkeley, UC Irvine, University of Washington, UC Davis, UC Santa Cruz.



CENTER FOR REGENERATIVE STUDIES

California State Polytechnic Institute, Pomona, CA

Inspired by architect and former Cal Poly Landscape Architecture Professor John T. Lyle, the Center for Regenerative Studies (CRS) is a 16-acre living and learning laboratory for students and faculty at the California Polytechnic Institute in Pomona, California. The Center was constructed in the 1990's as a demonstration site for sustainable and regenerative and practices.

The Center offers classrooms, meeting facilities, dining and living spaces, and features demonstration strategies including agriculture, solar living and onsite energy generation, waste water management, sustainable architecture and landscape design. The Center now houses the new Masters of Science in Regenerative Studies (MSRS) which integrates a variety of disciplines including agriculture, physical science, environmental design, engineering and business, humanities and social sciences. This multidisciplinary program is highly research and practice oriented for those seeking a more specialized graduate education.

The Center also supports a minor program in regenerative studies which provides a multidisciplinary approach that complements many other professional programs offered at Cal Poly including architecture, landscape architecture and urban and regional planning. Both the MSRS and the minor program are taught by faculty from all colleges on campus making it truly interdisciplinary and innovative opportunity for students to gain hands-on experience and practice.

For more information, contact:
909-869-5155, crs@csupomona.edu
or visit their website at
<http://www.csupomona.edu>

IN THE STUDENTS' WORDS . . .

"The term 'sustainability' has been used in some course descriptions, but there does not appear to be much rigour or depth in the application of sustainability to design problems." Architecture student

"[W]here ecodesign is not a fundamental part of the framework, you don't have time to take alternatives." Landscape Architecture student

"[T]he faculty that are most interested in [ecological design] tend to teach the least." Landscape Architecture student

"If courses are offered in the architecture department it is intimidating for planning students to enroll. Even when they are offered in the landscape dept (which has more overlap with planning), planners might feel unprepared compared to other students without some previous instruction." Planning student

"Many schools have great statements on paper but in reality are struggling to implement progressive ideas in pedagogy." Planning student

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