College of

Architecture and Environmental Design

Architecture and Environmental Design Bldg. (05)
Room 212
(805) 756-1321

R. Thomas Jones, Dean
K. Richard Zweifel, Associate Dean

ACADEMIC PROGRAMS
Architectural Engineering ........ BS
Architecture .......................... BArch, MS
City and Regional Planning ....... BS, MCRP, Minor
Construction Management ......... BS, Minor
Environmental Design ............. Minor
Integrated Project Delivery ...... Minor
Landscape Architecture .......... BLA
Real Property Development ...... Minor
Sustainable Environments........ Minor
Transportation Planning ......... MCRP/MS Engineering

The five undergraduate programs, listed above, have a common objective: the betterment of the human physical environment. These programs endeavor to give the student a set of social values, a technical background, and training which result in creative expressions that are effective both professionally and personally.

The masters programs are designed for students interested in advanced professional studies. The joint MCRP/MS Engineering with a specialization in Transportation Planning is an interdisciplinary program. It is a cooperative effort between the colleges of Engineering and Architecture and Environmental Design.

The well-equipped college facilities include design laboratories, grading galleries, soils laboratory, stress laboratory, construction shop, project yard, instructional resource center, computer laboratories, and photo presentation laboratory. An outlying area of 12 acres known as the "Canyon" is available for experimental construction.

The location of the campus between the great population centers of San Francisco and Los Angeles is ideal for environmental studies ranging from rural to large metropolitan complexes. An active visiting lecturer program joins with faculty in all departments in providing excellent student instruction. Field trips are arranged to various parts of the state as required work. Students have the opportunity to participate in national and international exchange programs. The college offers several opportunities through departmentally sponsored programs for directed foreign study. Students also regularly participate in the California State University's International Programs in Denmark and Italy.

In addition to individual faculty representation in a wide range of professional associations, departments are members of their respective educators associations: the Association of Collegiate Schools of Architecture (ACSA), the Council of Educators in Landscape Architecture (CELA), the Association of Collegiate Schools of Planning (ACSP), and the Associated Schools of Construction Management (ASCM). Likewise, students maintain active chapters of the professional organizations of the American Institute of Architects (AIA), the American Society of Landscape Architects (ASLA), the Associated General Contractors (AGC), the Structural Engineers Association of California (SEAOC), the American Planning Association (APA), and the National Society of Architectural Engineers (NSAE).

Opportunities for interdisciplinary interaction within the college are made available through coursework, annual forums, participation in district and national student competitions, student council activities and community service projects. Students are exposed to viable economic and ecological alternatives to conventional planning, design and construction through faculty applied research in such areas as passive solar building, post-disaster community rebuilding, sustainable transportation, earthquake-resistant building systems, project delivery methodologies, and daylighting and electrical lighting integration. The college has various enhanced computing capabilities including Geographic Information System Technology, Computer-Aided Design and Immersive Visualization (virtual reality).

Students interested in pursuing one of the five undergraduate program offerings within the college should familiarize themselves with the appropriate curriculum flow chart, available through the College Advising Center, Architecture and Environmental Design Bldg. (05), Room 221, and departments. Special attention is directed to the strict sequencing of courses and prerequisite requirements. Students who plan to transfer from a California community college should schedule classes to maximize transfer units. Reference should be made to the "Articulation Agreement" located in the community college counseling center.

All student work submitted for course credit becomes college property and will be returned only at the discretion of the instructor.
The College of Architecture and Environmental Design (CAED) Advising Center provides academic advising services to all students within the college in conjunction with each student's faculty advisor. These services include providing curriculum information about academic programs within the college; general education and breadth requirements; transfer credit; university and college policies and procedures; tutoring; special programs; referral of students to other campus resources.

The Advising Center processes most student-related forms including curriculum substitution, course withdrawal, change of major, and others. Curriculum sheets, flowcharts, articulation agreements, and information on jobs, scholarships and competitions are located in the Advising Center.

ENVIRONMENTAL DESIGN MINOR

The Environmental Design Minor will educate students in the principles and processes of environmental design. It will provide students from all major programs with the knowledge and ability to integrate such broad concerns as design, construction, history, urbanization, sustainable development and historic preservation with their major field of study.

Interested students should contact the Landscape Architecture Department for individual advisement.

Required courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCH 217/218/219 History of Architecture (C3)</td>
<td>4</td>
</tr>
<tr>
<td>CRP 212 Introduction to Urban Planning</td>
<td>4</td>
</tr>
<tr>
<td>EDES 101 Intro to Arch &amp; Environmental Design.</td>
<td>2</td>
</tr>
<tr>
<td>LA 130 Landscape Interpretation</td>
<td>4</td>
</tr>
</tbody>
</table>

Upper division electives .................................... 12

Non-CAED majors may select from the following list. CAED majors must take courses from no fewer than 3 prefixes (e.g. EDES) outside their major, and may not include courses required for their major:

ARCH 316, 401, 447;
CM 325, 341;
CRP 314, 336, 402, 447; EDES 406, 420;
LA 341, 318, 320, 330, 342, 363

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ENVIRONMENTAL STUDIES MINOR

Students who complete the Environmental Studies Minor will be able to:

- Analyze, explain, and evaluate environmental issues from both scientific/technical and social/political/economic perspectives.
- Integrate and synthesize knowledge from multiple disciplines.
- Explain and apply the methodologies and approaches that different disciplines bring to bear on complex problems.
- Work productively and effectively with students from other disciplines and with other points of view.
- Confront real issues of contemporary significance; issues that will affect them and their future.
- Gain employment or pursue further study that emphasizes interdisciplinary knowledge and skills.

Interested students should contact the College of Science and Mathematics for individual advisement. Please see the College of Science and Mathematics’ catalog section for additional information on this interdisciplinary minor.

INTEGRATED PROJECT DELIVERY MINOR

This minor is offered by the Construction Management Department, and is specific and intentional in its design. It is intended to provide an “interdisciplinary” understanding of the design and construction process. It is designed to serve students that will be engaged in the A/E/C industry and be involved in integrated services project delivery.

Prerequisite. Upper division standing; and thus students are presumed to have completed the majority of their General Education courses, support, and/or major courses.

Interested students should contact the Construction Management Department for individual assessment.

Required courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCOM 301 Business and Professional Communication</td>
<td>4</td>
</tr>
<tr>
<td>CM/CRP 315 Fiscal and Project Feasibility</td>
<td>4</td>
</tr>
<tr>
<td>CM/EDES 430 Collaborative Process</td>
<td>3</td>
</tr>
<tr>
<td>CM/EDES 431 Integrated Project Services</td>
<td>3</td>
</tr>
<tr>
<td>CM 432 Design-Build Project Management</td>
<td>3</td>
</tr>
<tr>
<td>IT 454 Facilities Development</td>
<td>4</td>
</tr>
</tbody>
</table>

Advisor approved electives ...................................... 9

Construction Management students must complete 9 units of advisor approved design courses (ARCE, ARCH, CRP or LA prefix)
Other CAED students must complete:
CM 364 Construction Jobsite Management (3)
CM 452 Project Controls (3)
CM 454 Construction Estimating (3)

Non-CAED students must complete:
9 units of advisor approved design and/or CM courses

REAL PROPERTY DEVELOPMENT MINOR

This minor is designed for students who are interested in the built environment, and want to deepen their knowledge of how projects get initiated, move through the development process, and then how they are managed after construction.

The program is designed to prepare students for entry-level employment with professionals engaged in real property development. Courses include aspects of practitioners' real world experiences and knowledge of state-of-the-art practices, techniques, and challenges.

Students learn about the economic, design, environmental, and regulatory factors that influence housing, office, industrial, and commercial projects. They gain a clearer understanding of how these factors impact green development, urban sprawl, place-making, and transit oriented development.

Interested students should contact the City and Regional Planning Department for individual advisement.

Required courses

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CM 475 Real Property Development Principles</td>
<td>4</td>
</tr>
<tr>
<td>CRP 315 Fiscal and Project Feasibility</td>
<td>4</td>
</tr>
<tr>
<td>CRP 446 Development Review and Entitlement</td>
<td>4</td>
</tr>
</tbody>
</table>

Select two or more courses from the following: 8/9

Required courses in the student's major may not be selected. Courses selected here may count as electives in the major:
CM 342, 364, 431, 453; CRP 336, 420, 442, 447, 520
CM 485-495 or CRP 409 (4 units maximum);
CM 470-471 or CRP 470-471 (4 units maximum);
BUS 434, 435 or CRP 400

Electives

Select 17 units from the following courses:
AG 450; ANT 201, 360; ARCH 413, 445, 472, 531; BIO 112, 301, 325; BOT 238; BRAE 348; CRP 211, 212, 214, 215, 336, 342, 334, 346, 436, 438; ECON 303; EDES 350, 410, 420; ENGL 380; FNR 306, FNR/GEOG/LA 318; GEOG 150, 333; HUM 303, 330; LA 321, 451, 482; PHIL 340; PHYS 310; POLS 326, 455, 484; PSY 311; SOC 313

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SUSTAINABLE ENVIRONMENTS MINOR

This minor will educate students within the college in the principles and various aspects of sustainable environmental design with global, regional and local perspectives and concepts. It will provide students with the knowledge and abilities needed to integrate concerns for ecology, social equity and economics within the context of human and natural resource systems and the built environment.

Interested students should contact the Architecture Department for individual advisement.

Required courses

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDES 406 Sustainable Environments</td>
<td>4</td>
</tr>
<tr>
<td>EDES 408 Implementing Sustainable Principles</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives

Select 17 units from the following courses:
AG 450; ANT 201, 360; ARCH 413, 445, 472, 531; BIO 112, 301, 325; BOT 238; BRAE 348; CRP 211, 212, 214, 215, 336, 342, 334, 346, 436, 438; ECON 303; EDES 350, 410, 420; ENGL 380; FNR 306, FNR/GEOG/LA 318; GEOG 150, 333; HUM 303, 330; LA 321, 451, 482; PHIL 340; PHYS 310; POLS 326, 455, 484; PSY 311; SOC 313

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# Architectural Engineering

## Department Chair, Abraham C. Lynn

Graham Archer
Craig Baltimore
Pamalee Brady
Kevin Dong
James Mwangi
Ansgar Neuenhofer
Brent Nuttall
Clayton Pharaoh
Satwant S. Rihal

### ACADEMIC PROGRAM

#### BS Architectural Engineering

The Architectural Engineering Department is an important and integral part of the College of Architecture and Environmental Design and shares and supports the mission of the College. The department has the specific mission of educating students to join the structural engineering profession. This commitment to the structural engineering profession includes the interdisciplinary concerns of the design, planning and construction professions. Additionally, graduates are prepared to pursue graduate studies in related academic programs.

The specific goals of the department are to provide an educational opportunity which would develop the ability to apply knowledge of mathematics; science and engineering; design and conduct experiments, as well as to analyze and interpret data; design a system, component, or process to meet desired needs; function on multi-disciplinary teams; identify, formulate, and solve engineering problems; communicate effectively; understand the impact of engineering solutions in a global and societal context; recognize the need for, and an ability to engage in life-long learning; understand contemporary issues; and use the techniques, skills, and modern engineering tools necessary for engineering practice.

The department's learn-by-doing philosophy is part of a pedagogy which emphasizes design-centered laboratories, integrating theory and design, culminating in a senior project capstone design experience.

The Architectural Engineering Program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

#### Integrated Project Delivery Minor

The department also participates in offering an interdisciplinary minor in Integrated Project Delivery. Please see the College of Architecture and Environmental Design for more information.

### BS ARCHITECTURAL ENGINEERING

- **GWR**
- **USCP**
- **60 units upper division**
- **2.0 GPA**

* = Satisfies General Education requirement

Note: All ARCE majors must obtain a grade of C- or better in ARCE courses that are prerequisites for other ARCE courses.

#### MAJOR COURSES

- ARCE 211 Structures I ............................................ 3
- ARCE 212 Structures II ........................................... 3
- ARCE 223 Mechanics of Structural Members ........ 4
- ARCE 225 Dynamics or ME 212 Engineering Dynamics ................... 3
- ARCE 227 Structural Analysis I ......................... 2
- ARCE 257 Structural CAD for Building Design .... 2
- ARCE 302 Structural Analysis II .................. 4
- ARCE 303 Steel Design ....................................... 3
- ARCE 304 Timber Design .................................... 3
- ARCE 305 Masonry Design ................................ 2
- ARCE 306 Matrix Analysis of Structures ........... 3
- ARCE 351, 352, 353 Structural Computing Analysis I, II, III......................... 1,1,1
- ARCE 371 Structural Systems Laboratory ........... 3
- ARCE 372 Steel Structures Design Laboratory ... 3
- ARCE 412 Dynamics of Framed Structures ........... 3
- ARCE 421 Soil Mechanics ................................ 3
- ARCE 422 Foundation Design .......................... 3
- ARCE 444 Reinforced Concrete Lab ................. 3
- ARCE 451 Timber/Masonry Structures Design Lab 3
- ARCE 452 Concrete Structures Design Laboratory 3
- ARCE 453 Senior Project Laboratory .............. 3
- ARCE 483 Seismic Analysis and Design ........... 4
- Advanced structural electives ....................... 6
- Approved professional electives .................. 4

#### SUPPORT COURSES

- ARCH 105 Professional Practice 1 ...................... 1
- ARCH 106 Materials of Construction .................. 2
- ARCH 121, 122, 123 Design and Drawing 1,1, ................................ 3,3,3
- ARCH 221 Architectural Design Fundamentals .... 3
- CM 211 Construction Contract Documents .......... 4
- ARCH 217/ARCH 218/ARCH 219 (C3)* .............. 4
- BRAE 237 Engineering Surveying I .................. 2
- CHEM 124 General Chem/Engr Discipline (B3/B4)* ................................ 4

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CM 433 Economic Analysis for Engineers or
IME 314 Engineering Economics (3) ............... 2
CSC 231 Fortran for Engineering Students or
CSC 234 C and UNIX (3) ................................. 2
CSC 341 Numerical Engineering Analysis or
approved equivalent (B6)* ............................ 4
EDES 101 Introduction to Architecture and
Environmental Design .................................... 2
EE 201 Electrical Circuit Theory .......................... 3
GEOL 201 Physical Geology .............................. 3
MATH 141, 142 Calculus I, II (B1)* .................. 4, 4
MATH 143 Calculus III (Add’l Area B)* ............... 4
MATH 241 Calculus IV ...................................... 4
MATH 244 Linear Analysis I ............................... 4
ME 302 Thermodynamics .................................. 3
ME 341 Fluid Mechanics ................................... 3
PHYS 131 General Physics (Add’l Area B)* ............ 4
PHYS 132, 133 General Physics .......................... 4, 4

GENERAL EDUCATION (GE)
72 units required; 28 units are in Support.
See page 69 for complete GE course listing.
Minimum of 8 units required at the 300-400 level.

Area A Communication (12 units)
A1 Expository Writing .................................... 4
A2 Oral Communication .................................... 4
A3 Reasoning, Argumentation, and Writing ............ 4

Area B Science and Mathematics (4 units)
B1 Mathematics/Statistics * 8 units in Support .... 0
B2 Life Science .............................................. 4
B3 Physical Science * 4 units in Support ............. 0
B4 One lab taken with either a B2 or B3 course
B5 (not required of Engineering)
B6 Upper-division Area B * 4 units in Support .... 0
Additional Area B units* 8 units in Support ........ 0

Area C Arts and Humanities (12 units)
C1 Literature .................................................. 4
C2 Philosophy .............................................. 4
C3 Fine/Performing Arts * 4 units in Support ....... 0
C4 Upper-division elective ............................... 4

Area D/E Society and the Individual (16 units)
D1 The American Experience (40404) ............... 4
D2 Political Economy ...................................... 4
D3 Comparative Social Institutions ..................... 4
D4 Self Development (CSU Area E) .................... 4

ELECTIVES .................................................... 0

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Academic Programs

B.Arch. Architecture

The objective of the five-year Bachelor of Architecture degree program is to develop design and related skills necessary for entry into the professional field of architecture. Preparation for architecture spans several disciplines and requires a range of aptitudes. As the architect has a responsibility for solving problems of the built environment involving people, an understanding and sensitivity to human needs is required. Therefore, programs in architecture are broad in nature. With careful selection of elective work, areas of specialization can be included.

The Bachelor of Architecture degree is accredited by the National Architectural Accrediting Board.

"In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit US professional degree programs in architecture, recognizes two types of degrees: the Bachelor of Architecture and the Master of Architecture. A program may be granted a six-year, three-year, or two-year term of accreditation, depending on its degree of conformance with established educational standards.

Masters degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree, which, when earned sequentially, comprise an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree."

Off-Campus Architecture Programs

Off-campus study opportunities for fourth year Architecture students are offered in a variety of formats and locations. Programs from one quarter to a full year are available abroad and in the United States. There is a third year student general information session each fall quarter to present the department-sponsored programs offered for the following year. Applications from third year students for all programs are due in the winter quarter.

CSU International Programs. There are two CSU-sponsored organized studio programs for Architecture majors, one in Copenhagen, Denmark, and one in Florence, Italy. The concept of the studio organization is similar to Cal Poly. Credit for major design courses, some professional electives, some general education courses and free electives are handled through approved overseas study centers.

London and Thailand Study Programs. The Architecture Department participates in the London and Thailand Study Programs. Students and faculty live at these sites and use them as the site of design problems and as the base location for field trips. It is possible to get credit for fourth year Design, Professional Electives and GE Areas C and D. Arrangements can be made for special studies for technical elective credit.

San Francisco Urban Design Internship Program offers fourth year students the opportunity to live and study in San Francisco for one quarter (fall and spring). Each class utilizes real projects with the participation of talented, award-winning architectural offices and urban designers to introduce students to urban design and architectural practice.

Washington Alexandria Architecture Consortium. The Consortium, comprised of several universities including Cal Poly, is organized to offer a challenging and stimulating one-year option. The Center functions as an extension of the College of Architecture of Virginia Polytechnic Institute and State University (VPI) in the Washington DC Metropolitan Area. The Consortium seeks to explore and expand design pedagogues and processes and establish collaboration with national and international institutions.

Exchange Programs. The Architecture Department offers a variety of exchange programs with universities.
Cooperative Education (Co-op). In addition to traditional classroom study experiences and instructor-led field trips, students have the opportunity to work for professional architecture firms and receive professional elective credits. To find out more about Cooperative Education opportunities, visit the Architecture Department or Career Services. Applications and opportunities for Co-op credit are available year-round.

BACHELOR OF ARCHITECTURE

- 60 units upper division
- GWR
- 2.0 GPA
- USCP

* = Satisfies General Education requirement

MAJOR COURSES

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCH 105</td>
<td>Architectural Practice 1</td>
<td>1</td>
</tr>
<tr>
<td>ARCH 121, 122, 123 (3)(3)(3) &amp; ARCH 160 (4)</td>
<td></td>
<td>12-13</td>
</tr>
<tr>
<td>or ARCH 131, 132, 133 (4)(4)(4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARCH 207 Environmental Control Systems 1</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ARCH 217 History of Architecture (C3)*</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ARCH 218 History of Architecture (Area C)*</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ARCH 219 History of Architecture</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ARCH 241, 242 Architectural Practice 2.1, 2.2</td>
<td>4,4</td>
<td></td>
</tr>
<tr>
<td>ARCH 251, 252, 253 Arch. Design 2.1, 2.2, 2.3</td>
<td>5,5,5</td>
<td></td>
</tr>
<tr>
<td>ARCH 307 Environmental Control Systems 2</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ARCH 341, 342 Architectural Practice 3.1, 3.2</td>
<td>4,4</td>
<td></td>
</tr>
<tr>
<td>ARCH 351, 352, 353 Arch. Design 3.1, 3.2, 3.3</td>
<td>5,5,5</td>
<td></td>
</tr>
<tr>
<td>ARCH 420/320 Seminar in Architectural History</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ARCH 443 Professional Practice</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ARCH 451, 452, 453 Arch. Design 4.1, 4.2, 4.3</td>
<td>5,5,5</td>
<td></td>
</tr>
<tr>
<td>ARCH 481 Senior Arch Design Project or 1 ARCH 521 Graduate Arch Design Project</td>
<td>5,5,5</td>
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</tr>
<tr>
<td>ARCH 492 Senior Design Thesis or 1 ARCH 592 Graduate Design Thesis</td>
<td>3</td>
<td></td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>120-121</strong></td>
<td></td>
</tr>
</tbody>
</table>

SUPPORT COURSES

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCE 211</td>
<td>Structures I</td>
<td>3</td>
</tr>
<tr>
<td>ARCE 212 Structures II</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ARCE 226 Structural Systems for Architects</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ARCE 315 Small Scale Buildings</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ARCE 316 Large Scale Buildings</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>EDES 101 Intro to Architecture and Env Design</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>MATH 141 Calculus I (B1)*</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>MATH 182 Calculus for Architecture and Construction Management (B1)*</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>PHYS 121/PHYS 131/PHYS 141 (B3)*</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>PHYS 122 College Physics II or PHYS 132 General Physics II</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

Professional Electives

- 20 units

May include:
- Any EDES, ARCH, ARCE, CM, CRP LA or ART course.
- Any course included in any College of Architecture and Environmental Design minor, or the ART minor.
- Any MBA, Architectural Management Track course (this option is no longer available).

GENERAL EDUCATION (GE)

- 72 units required; 20 units are in Major and Support.
- See page 69 for complete GE course listing.
- Minimum of 12 units required at the 300-400 level.

<table>
<thead>
<tr>
<th>Area</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area A Communication (12 units)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A1 Expository Writing</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>A2 Oral Communication</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>A3 Reasoning, Argumentation, and Writing</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Area B Science and Mathematics (4 units)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B1 Mathematics/Statistics</td>
<td>8 units in Support ± 0</td>
<td></td>
</tr>
<tr>
<td>B2 Life Science</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>B3 Physical Science</td>
<td>4 units in Support ± 0</td>
<td></td>
</tr>
<tr>
<td>B4 One lab taken in either PHYS 121/131 (see Support) or a B2 course with lab component</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area C Arts and Humanities (12 units)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C1 Literature</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>C2 Philosophy</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>C3 Fine/Performing Arts</td>
<td>4 units in Major ± 0</td>
<td></td>
</tr>
<tr>
<td>C4 Upper-division elective</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Area C elective</td>
<td>4 units in Major ± 0</td>
<td></td>
</tr>
<tr>
<td>Area D/E Society and the Individual (20 units)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D1 The American Experience</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>D2 Political Economy</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>D3 Comparative Social Institutions</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>D4 Self Development (CSU Area E)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>D5 Upper-division elective</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Area F Technology Elective (upper division)</td>
<td>(4 units)</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>227-228</strong></td>
<td></td>
</tr>
</tbody>
</table>

1 Option for students intending to pursue a graduate degree.
2 PHYS 121 and PHYS 131 have a lab (B4). If PHYS 141 is taken, then take a B2 Life Science course with a lab (B4).
MBA – Architectural Management Track
This program is available only to those students who are enrolled in Cal Poly's Bachelor of Architecture (BArch) program. During the fifth/final year of the architecture program, students may request permission to enroll in MBA courses. The request, along with all supporting documents, must be submitted to the Orfalea College of Business – Graduate Programs Office. Permission to participate in the courses is competitive and based upon the student’s previous academic performance and GMAT/GRE results.

Upon completion of the BArch degree, students are eligible to formally apply to the University for admission to the MBA program. Students who fulfill all the requirements first receive the BArch and then the MBA.

MBA Common Required Courses (36)
- GSB 511 Accounting for Managers......................... 4
- GSB 512 Quantitative Analysis ............................... 4
- GSB 513 Organization Behavior.............................. 4
- GSB 523 Managerial Economics ............................. 4
- GSB 524 Marketing Management............................ 4
- GSB 531 Managerial Finance ................................. 4
- GSB 533 Aggregate Economic Analysis & Policy........... 4
- GSB 534 Production and Operations Mgmt................ 4
- GSB 562 Seminar in General Mgmt & Strategy or GSB 567 Adv Sem International Business Mgmt
  or other approved culminating experience ...........  4

Advisor approved electives ....................................... 24

One elective must satisfy the Orfalea College of Business’ international course requirement

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MCRP, ARCHITECTURE PLANNING TRACK
This track is available only to students who are enrolled in Cal Poly's Bachelor of Architecture (BArch) program. Students may request permission to enroll in Master of City and Regional Planning (MCRP) graduate level courses during their fourth and fifth years of study. Upon completion of the BArch degree, students are eligible to formally apply for graduate student status in the MCRP program. Students who fulfill all the requirements will first receive the BArch and then the MCRP. Contact the Graduate Coordinator, City and Regional Planning Department for additional information.

MASTER OF SCIENCE IN ARCHITECTURE
The Master of Science in Architecture is a post-professional degree in the broad field of architecture with an emphasis on environmental planning and design in an information society. Common core studies aim to establish a framework for advanced study and research, while specialization and directed electives provide for the development of in-depth study chosen by candidates.

Professional Practice Specialization. Designed for applicants holding an accredited architecture degree wishing to pursue advanced studies with a strong professional practice orientation.

Environmental Design Specialization. Designed for applicants holding a degree in one of the several cognate environmental design disciplines, engineering, or computer science, wishing to pursue advanced studies with a strong inter-professional orientation. This is a post-professional specialized degree in the inter-professional field of environmental design, with special reference to its three primary contributory disciplines of Architecture, City and Regional Planning, and Landscape Architecture. The common core curriculum aims to establish a central focus for advanced study and research, while sub-core studies and directed electives provide for the development of in-depth study in one of the contributory disciplines of Architecture, City and Regional Planning, Architectural Engineering, Landscape Architecture and Construction Management.

Graduate Study Areas. The graduate study topics are challenging. Each is of critical importance to the architecture, engineering, and construction industry. The knowledge and experience students bring to the program are fully employed. At the same time new practices and new knowledge are acquired. These study areas are:

* Computer-Aided Design. Focusing on the development and utilization of computer systems in the architectural process, with particular emphasis on design information representation and management, the development and utilization of knowledge bases, and expert design assistants. Students are encouraged to participate in the research projects undertaken by the CAD Research Center of the College of Architecture and Environmental Design.

* Architectural Science. Focusing on the increasingly complex performance and technical aspects of architectural design and the knowledge and skills needed when designers deal with the challenges associated with such topics as energy responsive architecture, acoustics, lighting, and wind-effects phenomena.
* Facilities Management. Stresses the practice of coordinating the physical workplace with the people and work of an organization. It integrates the principles of business administration, architecture, and behavioral and engineering sciences. Facilities management is concerned with the design, construction, maintenance, and management of physical environments. Facility managers usually work as generalists managing teams of specialists such as architects, interior architects, interior designers, engineers, construction personnel, communication technicians, etc.

**CURRICULUM FOR MS ARCHITECTURE**

**Core Curriculum** ....................................................... 36

ARCH 519 Theory of Architecture (3)
ARCH 551 Architectural Design (15)
ARCH 561 Advanced Design (9)
ARCH 598 Master's Design Project (9)

**Directed Electives** ....................................................... 9

A minimum of 9 units of advisor approved elective courses will be included in a student's formal program of study.

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For further information contact the Graduate Program Coordinator, Architecture Department, College of Architecture and Environmental Design, Cal Poly, San Luis Obispo, CA 93407.
City and Regional Planning

Department Office
Dexter Bldg. (34), Room 251
(805) 756-1315

Department Head, William J. Siembieda
Michael R. Boswell                Vicente del Rio
W. David Conn                     D. Gregg Doyle
Linda C. Dalton                   David T. Dubbink
                                  Paul Wack

ACADEMIC PROGRAMS

BS City and Regional Planning
MCRP Master of City and Regional Planning
MCRP/MS Engineering with Specialization in Transportation Planning
City and Regional Planning Minor

The profession of city and regional planning is involved in helping people and communities manage growth and change in their physical, social, and economic environments. The focus is on understanding how cities and towns (human settlements) function and how to make them better places for people to live, work and play. Planning has its roots in engineering, architecture, landscape architecture, law, social welfare and government reform. The practice of city and regional planning is both science and art. It involves technical competence, creativity, hard-headed pragmatism and the ability to develop a vision of the future and to build on that vision. Planners today combine design, quantitative, and people skills to assist communities and society. Both the undergraduate (BSCRP) and the graduate (MCRP) programs are accredited by the national Planning Accreditation Board.

The degree programs prepare students for professional careers in the design of human settlements in harmony with the natural environment and the needs of society. Practicing planners work in public agencies and private consulting firms, preparing comprehensive plans for projects, neighborhoods, cities, and entire regions. They deal with the use of land, housing, transportation, public facilities, and open space. In addition, they are responsible for finding the means to make their plans become a reality by budgeting for public projects and programs and by reviewing and regulating private development.

The curriculum leading to the Bachelor of Science in City and Regional Planning provides a broad, interdisciplinary education as well as competency in physical planning with a specialization in urban and regional design. The Master of City and Regional Planning degree builds on a general undergraduate preparation in the humanities, architecture, landscape architecture, social sciences or natural sciences, and offers two areas of emphasis: urban development and design and environmental planning.

BS CITY AND REGIONAL PLANNING

- 60 units upper division
- GWR
- 2.0 GPA
- USCP

* = Satisfies General Education requirement

MAJOR COURSES

CRP 101 Intro to Profession of CRP ....................... 1
CRP 201 Basic Graphic Skills ................................. 4
CRP 202 Urban Design Studio I ............................... 4
CRP 203 Urban Design Studio II ............................. 4
CRP 212 Introduction to Urban Planning ................... 4
CRP 213 Population, Housing and Econ Apps .......... 4
CRP 214 Land Use and Transportation Studies ......... 4
CRP 215 Planning for and with Multiple Publics ....... 4
CRP 216 Computer Applications for Planning .......... 2
CRP 314 Planning Theory ...................................... 3
CRP 315 Fiscal and Project Feasibility ................... 4
CRP 336 Intro to Environmental Planning ............... 4
CRP 341 Community Design Laboratory ................... 4
CRP 342 Environmental Planning Methods ............... 4
CRP 409 Planning Internship .................................. 2
CRP 410, 411 Community Planning Lab I, II .......... 5,5
CRP 412 Plan Implementation ............................... 4
CRP 420 Land Use Law ......................................... 4
CRP 430 Public Sector Planning Practice ............... 3
CRP 436 Collaborative Planning ............................. 4
CRP 461, 462 Senior Project I, II ......................... 2,2
Advisor approved electives .................................. 12

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SUPPORT COURSES

EDES 101 Intro to Arch and Env Design .................. 2
FNR 306/FNR 319/BIO 112 .................................. 4
GEOL 102 (B3*)/GEOL 205 (B3*)/CHEM 110 (B3&B4)* ................................................................. 4
LA 213 Site and Terrain Analysis or LA 220 Landscape Ecology: Concepts, Issues and Interrelationships ........................................... 4
MATH 118 Pre-Calculus Algebra (B1)* .................... 4
POLS 375/471/516 ................................................ 4
STAT 221 Intro to Probability & Statistics (B1)* ...... 5

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GENERAL EDUCATION (GE)

72 units required; 12 units are in Support.

→ See page 69 for complete GE course listing.
→ Minimum of 12 units required at the 300-400 level.

Area A Communication (12 units)

A1 Expository Writing ................................. 4
A2 Oral Communication ............................... 4
A3 Reasoning, Argumentation, and Writing .... 4
Area B  Science and Mathematics (4 units)
   B1 Mathematics/Statistics * 8 units in Support....  0
   B2 Life Science ......................................  4
   B3 Physical Science * 4 units in Support...........  0
   B4 One lab taken with either a B2 or B3 course

Area C  Arts and Humanities (20 units)
   C1 Literature ............................................  4
   C2 Philosophy ...........................................  4
   C3 Fine/Performing Arts ...............................  4
   C4 Upper-division elective .............................  4
   Area C elective (Choose one course from C1-C4)  4

Area D/E  Society and the Individual (20 units)
   D1 The American Experience (40404) ............  4
   D2 Political Economy ....................................  4
   D3 Comparative Social Institutions .................  4
   D4 Self Development (CSU Area E) .................  4
   D5 Upper-division elective ............................  4

Area F Technology Elective (upper division)
(4 units)

ELECTIVES ......................................................... 11/12

Select three courses from the following:

Additional Minors
The department also participates in offering interdisciplinary minors in Environmental Design, Real Property Development, and Sustainable Environments. Please see pages 147-48 for additional information.

MCMP ADVISING TRACK (5+1) FOR BLA & BARCH STUDENTS
Students may pursue an accelerated route to a graduate professional degree through enrollment in MCRP courses during their fourth and fifth years of undergraduate study and an additional year of graduate study after completion of their undergraduate degree. Contact the Graduate Coordinator, City and Regional Planning Department, for additional information.

BLENDED BACHELOR OF LANDSCAPE ARCHITECTURE/MASTER OF CITY AND REGIONAL PLANNING PROGRAM (BLA/MCRP)
The blended BLA/MCRP Program is an accelerated route to the graduate professional degree in City and Regional Planning. Under this program a student can simultaneously graduate with a BLA and MCRP. Contact the Graduate Coordinator, City and Regional Planning Department, for additional information.
MASTER OF CITY & REGIONAL PLANNING

General Characteristics
The Master of City and Regional Planning degree (MCRP) is an applied, comprehensive, and professionally-based program. It is open to students with high standards of academic achievement who wish to pursue careers in city and regional planning. It is structured to prepare graduates to function in a general context of city planning, as well as in an area of special emphasis. The core courses cover planning theory, methods, law, and formulation and implementation of plans and policies.

Two principal areas of study are emphasized:
- urban development and design, focused on comprehensive physical planning, housing, and community development, and
- environmental planning, focused on natural systems and development impacts.

In addition, skill building in all aspects of planning communications (visual, verbal, written) is stressed. The City and Regional Planning Department jointly offers the MCRP degree with the Master of Science in Engineering with a specialization in transportation planning (see page 158).

The MCRP program is structured to meet the needs of those who have earned baccalaureate degrees in a variety of disciplines including, but not limited to, economics, business, geography, architecture, landscape architecture, civil engineering, political science, environmental or urban studies, natural resources management, and ecology. The program is six quarters (two years) in duration and consists of 72 approved units (not including courses necessary to compensate for deficiencies). Because of the sequencing of courses, students admitted to the program are generally expected to begin their studies in the fall quarter. Students with prerequisite coursework deficiencies and those with backgrounds allowing waivers of first-year core courses may be admitted in other quarters. The degree culminates in a thesis (CRP 599), professional project (CRP 596), or community planning studio (CRP 556) plus a comprehensive exam.

Students have an opportunity to develop close working relationships with the planning faculty. Self-directed study, tailored to the student's interests and needs, is also encouraged.

Prerequisites
Students entering the MCRP program are required to have a background in computers and computer applications equivalent to the Cal Poly course, CSC 110 Computers and Computer Applications: Windows. This includes knowledge of Microsoft Windows, word processing and spreadsheets.

Applicants for admission to the Master of City and Regional Planning program are expected to:

1. Have earned a bachelor's degree from an accredited university or college,
2. Have attained a grade point average of 3.0 in last 90 quarter units of undergraduate work,
3. Provide the CRP Department with the results of the Graduate Record Examination Aptitude Test in cases of borderline grade point average,
4. Give indications of motivation, maturity, and high standards of academic involvement through work and references (three letters required) and submission of a project or paper demonstrating writing ability,
5. Provide a statement (maximum of 500 words) demonstrating an understanding of, and areas of interest in, city and regional planning, career and educational objectives.

Applicants lacking prerequisites or other background requirements for classified standing requirements may be admitted on a conditionally classified basis, depending on the results of an individual analysis of their applications.

Units

Core Courses .................................................. 55/57

First Year
CRP 501 Foundations of Cities and Planning (4)
CRP 510 Planning Theory (4)
CRP 512 Intro to Visual Communication and GIS (4)
CRP 513 Planning Research Methods (4)
CRP 516 Methods of Data Analysis (4)
CRP 525 Plan Implementation (4)
CRP 553 Project Planning Lab (4)

Second Year
CRP 409 Planning Internship (4)
CRP 518 Public Policy Analysis (4)
CRP 530 Planning Agency Management (3)
CRP 535 Land Use and Planning Law (4)
CRP 552 Community and Regional Planning Studio I (4)
CRP 554 Community and Regional Planning Studio II (4)
CRP 596 Prof Project (2)(2)(2) or
CRP 599 Thesis/Project (2)(2)(2) or
CRP 556 Community and Regional Planning Studio III (4)

Emphasis Area (select one) ......................... 11
Urban Development and Design
CRP 520 Feasibility Studies in Planning (4)
CRP 548 Principles of Urban Development and Design (4)
Advisor approved urban electives (3)

Environmental Planning
CRP 545 Principles of Env Planning (4)
Advisor approved environmental electives (7)

Advisor approved electives ................................ 6/4

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Joint MCRP/MS Engineering with Specialization in TRANSPORTATION PLANNING

The Transportation Planning Specialization is a joint interdisciplinary program between the College of Engineering and the City and Regional Planning Department, College of Architecture and Environmental Design. Participation in the program requires enrollment in both Colleges. Students successfully completing the program will be awarded both the MCRP and the MS in Engineering, each with a Specialization in Transportation Planning.

The major objectives of this joint program are to:

(a) Provide an interdisciplinary graduate program which combines elements of transportation planning with city and regional planning to address a need for professionals who have a command of both the technology of transportation planning and the place of transportation within the urban environment. The required master's project is intended to allow the students a period of directed study that will allow them to integrate their work and to apply this to special areas of their choosing.

(b) Provide planners with courses essential to understanding the technologies of transportation planning. To provide engineers with a broad background in urban studies and a knowledge of contemporary environmental issues.

(c) Take advantage of the backgrounds of program participants. The graduate students of both sponsoring departments include both mature professionals returning for advanced degrees and recent graduates with a diversity of specializations.

Prerequisites. Applicants must have satisfactorily completed courses that cover the following or equivalent subject areas:

CE 221 Fundamentals of Transportation Engineering
CE 381 Geotechnical Engineering or GEOL 201 Physical Geology
CSC 231 Fortran for Engineering Students
ECON 201 Survey of Economics
ENGL 148 Reasoning, Argumentation and Professional Writing
MATH 143 Calculus
PHYS 131 General Physics
SCOM 101 Public Speaking
STAT 321 Probability and Statistics for Engineers and Scientists

Applicants for admission to the joint program with a specialization in Transportation Planning are expected to:

1. Have earned a bachelor's degree from an accredited university or college,
2. Have attained a grade point average of 3.0 in last 90 units of undergraduate work,
3. Provide results of the Graduate Record Examination (GRE) Aptitude Test to the Admissions Committee (required only if grade point average is below the required 3.0),
4. Give indications of motivation, maturity, and high standards of academic involvement through work and references (three letters required) and submission of a project or paper demonstrating writing ability,
5. Provide a statement (maximum of 500 words) addressing their understanding of and areas of interest in planning, career objectives, and educational objectives.

Applicants lacking prerequisites or other background requirements for classified standing may be admitted on a conditionally classified basis, depending on the results of an individual analysis of their applications.

Core Courses .........................................................  64
CE 523 Transportation System Planning (4)
CE 528 Transportation Analysis or CE 525 Airport Planning and Design (4)
CE 591 Graduate Seminar (1)
CE 599 Design Project (Thesis) (2,2,2) or CRP 599 Thesis (2)(2)(2) or CRP 596 Professional Project (2)(2)(2)
CRP 409 Planning Internship (4)
CRP 435 Transportation Theory (3)
CRP 501 Foundations of Cities and Planning (4)
CRP 510 Planning Theory (4)
CRP 513 Planning Research Methods (4)
CRP 516 Methods of Data Analysis (4)
CRP 518 Policy Analysis for Planners(4)
CRP 525 Plan Implementation (4)
CRP 530 Planning Agency Management (3)
CRP 535 Land Use and Planning Law (4)
CRP 552, 554 Community and Regional Planning Studio I, II (4)
CSC, MATH, STAT or other approved quantitative methods course (3)

Emphasis Area (select one of the following) ...........  11
Urban Development and Design Emphasis
CRP 520 Feasibility Studies in Planning (4)
CRP 548 Principles of Urban Dev. and Design (4)
Urban Development and Design elective (3)

Environmental Planning Emphasis
CRP 545 Principles of Env. Planning (4)
Environmental Planning electives (7)

Approved CE/ENVE electives: .........................  15
Select from: CE 421, 422, 424, 522, 525, 528, 529, 573, 574, ENVE 411, 465, or other advisor approved CE/ENVE courses
Construction Management

Department Office
Engineering West (21), Room 116-A
(805) 756-1323

Department Head, Allan Hauck
William C. Epstein        Hal Johnston
Barbara Jackson           Paul Weber
Barry Jones

ACADEMIC PROGRAMS

BS Construction Management
Construction Management Minor

The curriculum in Construction Management leads to the Bachelor of Science degree which is accredited by the American Council for Construction Education. Major emphasis is placed on organizing and managing the construction phase of society's efforts to improve the environment. The constructor is an important member of the building team and requires a professional knowledge of techniques, materials, equipment, job planning and cost control to add to the contributions of the planning and design professions. Graduates of this program can help supply the urgent needs of the construction industry and its related fields.

Laptop Requirement

The department has a requirement that all students have a notebook computer beginning the sophomore year. This is the point the students begin their major coursework and begin preparing themselves for a career in the construction industry. Most Construction Management classes emphasize cooperative projects/assignments, and a notebook computer provides the required mobility to facilitate collaboration. In today's construction environment, computing is an integral component with the computer being the standard tool. A notebook computer is the key to having computing capability available at all times and all locations. Financial aid may be available to cover the cost of the computer laptop (contact the Financial Aid Office for more information).

Minors

The department offers a Construction Management Minor for students in other programs and also participates in offering interdisciplinary minors in Environmental Design, Integrated Project Delivery, and Real Property Development. Please see the College of Architecture and Environmental Design for more information.

BS CONSTRUCTION MANAGEMENT

☑ 60 units upper division      ☑ GWR
☑ 2.0 GPA                      ☑ USCP
* = Satisfies General Education requirement

MAJOR COURSES

CM 211 Construction Drawings and Specifications  4
CM 212 Fundamentals of Construction Mgt...........  3
CM 221 Concrete Technology ............................ 3
CM 331 Construction Accounting......................  3
CM 332 Evaluation of Cost Alternatives .............  3
CM 333 Construction Contracts and Law ............  3
CM 341 Residential Construction Practices.......... 3
CM 342 Commercial Construction Practices........... 3
CM 343 Heavy Civil Construction Practices.........  3
CM 352 Electrical Systems for Buildings ..........  3
CM 353 Mechanical Systems for Buildings ..........  3
CM 364 Construction Jobsite Management ..........  3
CM/EDES 431 Integrated Project Services...........  3
CM 444 Management of the Construction Firm......  3
CM 444Concrete Formwork and Other Temporary Structures ..................  3
CM 452 Project Controls...............................  3
CM 454 Construction Estimating ......................  3
CM 463 Senior Project: Professional Practice for Constructors..................  3
Advisor approved technical electives...............  8
(maximum 6 units in Co-op)

SUPPORT COURSES

ARCE 211 Structures I.................................  3
ARCE 212 Structures II...............................  3
ARCE 226 Structural Systems for Architects ......  3
ARCE 315 Small Scale Buildings ....................  4
ARCE 316 Large Scale Buildings ....................  4
ARCE 421 Soil Mechanics..............................  3
ARCH 105 Professional Practice 1 ..................  1
ARCH 106 Materials of Construction .................  2
BRAE 239 Engineering Surveying .................  4
BUS 201 Business Law Survey .......................  3
BUS 212 Financial Acctg for Nonbusiness Majors  4
ECON 221 Microeconomics ............................  4
ECON 222 Macroeconomics (D2)* .....................  4
EDES 101 Intro to Architecture and Env Design....  2
ENGL 310 Corporate Communication or ENGL 318 Advanced Professional Writing ....  4
GEOL 201 Physical Geology .........................  3
MATH 141 Calculus I (B1)* .........................  4

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MATH 142 Calculus II or MATH 182 Calculus for Architecture and Construction Management........ 4
PHYS 131/141 General Physics........................................ 4
PHYS 132/CHEM 124/CHEM 127 (B3 & B4)* ....... 4
STAT 251 Statistical Inference for Mgmt I (B1)* ... 4
BUS 215 Managerial Accounting .............................. 4
BUS 300–400 level advisor approved elective ...... 4

**GENERAL EDUCATION (GE)**
72 units required; 16 units are in Support.
→See page 69 for complete GE course listing
→Minimum of 12 units required at the 300–400 level.

**Area A Communication (12 units)**
A1 Expository Writing ............................................ 4
A2 Oral Communication ........................................... 4
A3 Reasoning, Argumentation, and Writing .......... 4

**Area B Science and Mathematics (4 units)**
B1 Mathematics/Statistics * 8 units in Support.... 0
B2 Life Science .................................................. 4
B3 Physical Science * 4 units in Support .......... 0
B4 One lab taken with either a B2 or B3 course

**Area C Arts and Humanities (20 units)**
C1 Literature ..................................................... 4
C2 Philosophy ...................................................... 4
C3 Fine/Performing Arts ....................................... 4
C4 Upper-division elective .................................... 4
C Area elective (Choose one course from C1-C4) 4

**Area D/E Society and the Individual (16 units)**
D1 The American Experience (40404) .............. 4
D2 Political Economy * 4 units in Support ......... 0
D3 Comparative Social Institutions ..................... 4
D4 Self Development (CSU Area E) ................. 4
D5 Upper-division elective .................................. 4

**Area F Technology Elective (upper division) (4 units).......................................................... 4

**CONSTRUCTION MANAGEMENT MINOR**
The Construction Management Minor provides students an introduction to the body of knowledge expected of persons pursuing careers in the construction industry. This minor will give a student a competitive edge when applying for certain jobs, by providing concepts, tools and skills which will enhance one’s progress in a career in one of the professions involved in the built environment.

The Construction Management Minor is recommended for majors in architecture, architectural engineering, civil engineering, mechanical engineering and electrical engineering. Enrollment in the minor is limited, and selection will be made based upon the applicant’s performance in his or her major courses. Contact the department for more information.

**Core courses**
CM 212 Fundamentals of Construction Mgmt........ 3
CM 364 Construction Jobsite Management .......... 3
CM 452 Project Controls......................................... 3
CM 454 Construction Estimating .......................... 3

**Methods courses**.................................................. 6
Select two of the following six courses:
CM 341 Residential Construction Practices (3)
CM 342 Commercial Construction Practices (3)
CM 343 Heavy Civil Construction Practices (3)
CM 352 Electrical Systems for Buildings (3)
CM 353 Mechanical Systems for Buildings (3)
CM 444 Concrete Formwork and Other Temporary Structures (3)

**Management courses**........................................... 6
Select two of the following four courses:
CM 331 Construction Accounting (3)
CM 332 Evaluation of Cost Alternatives (3)
CM 333 Construction Contracts and Law (3)
CM 443 Management of the Construction Firm (3)

**Project-Based courses**.......................................... 3
Select one of the following two courses:
CM 431 Integrated Project Services (3)
CM 463 Senior Project: Professional Practice for Constructors (3)

**ELECTIVES .......................................................... 0

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2005-2007 Cal Poly Catalog
Landscape Architecture

Department Office
Dexter Bldg.(34), Room 213
(805) 756-1319

Department Head (Interim), Walter D. Bremer
Gary R. Clay
Beth Diamond
Gary C. Dwyer
Omar Faruque
William P. MacElroy
Joseph J. Ragsdale
Dale A. Sutliff

Affiliated Faculty:
Thomas J. Rice, Earth and Soil Sciences Department

ACADEMIC PROGRAMS
Bachelor of Landscape Architecture

The profession of landscape architecture is primarily involved with the design, planning, and protection of the natural and developed environments. The program in landscape architecture is accredited by the American Society of Landscape Architects and recognized by the Landscape Architects Technical Committee of the California Board of Architectural Examiners.

An emphasis is placed on a process oriented approach to design and planning while developing an awareness and sensitivity to community and human values as they relate to environmental conditions. Students majoring in landscape architecture will acquire technical competencies and creative design skills through a range of projects which represent the breadth of the profession.

Graduates of the program are prepared for positions in private practice, consulting, governmental agencies at the national, state or local levels, industry and construction firms. Graduate study is encouraged for those students interested in pursuing advanced studies or academic positions.

Majors who are in their last two years of study and have at least a 3.2 grade point average may have the opportunity to join Theta Chapter of Sigma Lambda Alpha, the national scholastic honor society for landscape architecture.

BACHELOR OF LANDSCAPE ARCHITECTURE

- 60 units upper division
- GWR
- 2.0 GPA
- USCP
* = Satisfies General Education requirement

MAJOR COURSES
LA 101 Introduction to Landscape Architecture...... 4
LA 130 Landscape Interpretation....................... 4
LA 170 Principles of Design Communication......... 4
LA 202 Design Fundamentals I.......................... 4
LA 203 Design Fundamentals II......................... 4
LA 204 Design Fundamentals III....................... 4
LA 221 California Plants and Plant Communities... 4
LA 241 Site Engineering Techniques & Apps........ 4
LA 242 Implementation Strategies..................... 4
LA 243 Materials and Techniques of Landscape Construction.................................. 4
LA 320 Design Theory for Landscape Architecture 4
LA 330 Cultural Landscapes: People, Places and Ethical Decisions................................. 4
LA 341 History of Landscape Architecture .......... 4
LA 342 History of 20th Century Landscape Arch.... 4
LA 370 Professional Practice............................. 4
LA 371 Internship............................................. 3
LA 402 Design Theory & Exploration Focus Studio
LA 403 Natural Environments Design Focus Studio ...... 4
LA 404 Cultural Environments Design Focus Studio ..... 4
LA 405 Project Design and Implementation Focus Studio.............................................. 4
Select one course from:
LA 402, LA 403, LA 404, or LA 405.................. 4
Select five (5) courses from the following
Integrated Learning Courses (ILC)..................... 20
LA 431 CAD & Digital Media Communications
(ILC)(4)
LA 432 Landscape Ecology Applications
(ILC)(4)
LA 433 Cultural Environments (ILC)(4)
LA 434 Project Design and Implementation
(ILC) (4)
LA 435 Professional Practice (ILC) (4)
LA 436 Traditional/Digital Design
Communications (ILC) (4)
LA 437 3D Digital Design Communications
(ILC)(4)
LA 438 GIS Application to Design Projects
(ILC) (4)
LA 461 Senior Design Project Focus Studio......... 4,4
Upper division LA or advisor approved electives... 8

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SUPPORT COURSES
ARCH 217/218/219 History of Architecture (C3)*  4
BOT 121 General Botany (B2 & B4)*..................... 4
CRP 212 Introduction to Urban Planning ............... 4
EDES 101 Intro Architecture & Env Design ............ 2
EHS 231 Plant Materials ..................................... 4
EHS 232 Plant Materials ..................................... 4
MATH 118 Pre-Calculus Algebra (B1)* ................... 4
MATH 119 Pre-Calculus Trigonometry (B1)* .......... 4
Advisor approved electives .................................. 8

Choose 8 units from the following:
SS 121 Introductory Soil Science (4)
BIO 227 Wildlife Conservation Biology (4)
BRAE 337 Landscape Irrigation (3)
STAT 217 Intro to Stat Concepts and Methods (4)
or STAT 218 Applied Stat for Life Sciences (4)

GENERAL EDUCATION (GE)
72 units required; 16 units are in Support.
→See page 69 for complete GE course listing.
→Minimum of 12 units required at the 300-400 level.

Area A Communication (12 units)
A1 Expository Writing .................................... 4
A2 Oral Communication .................................... 4
A3 Reasoning, Argumentation, and Writing.......... 4

Area B Science and Mathematics (4 units)
B1 Mathematics/Statistics * 8 units in Support .. 0
B2 Life Science * 4 units in Support ................. 0
B3 Physical Science ....................................... 4
B4 One lab taken with either a B2 or B3 course

Area C Arts and Humanities (16 units)
C1 Literature ............................................ 4
C2 Philosophy .......................................... 4
C3 Fine/Performing Arts * 4 units in Support .. 0
C4 Upper-division elective ............................. 4
Area C elective (Choose one course from C1-C4) 4

Area D/E Society and the Individual (20 units)
D1 The American Experience (40404) ............. 4
D2 Political Economy ................................... 4
D3 Comparative Social Institutions ................... 4
D4 Self Development (CSU Area E) ................. 4
D5 Upper-division elective ............................. 4

Area F Technology Elective (upper division)
(4 units).................................................. 4

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ELECTIVES .................................................. 8

MBA – Landscape Architecture Management Track
This program is available only to those students who are currently enrolled in Cal Poly’s Bachelor of Landscape Architecture (BLA) program. During the fifth/final year of the landscape architecture program, students may request permission to enroll in MBA courses. The request, along with all supporting documents, must be submitted to the Orfalea College of Business – Graduate Programs Office. Permission to participate in the courses is competitive and based upon the student’s previous academic performance and GMAT/GRE results.

Upon completion of the BLA degree, students are eligible to formally apply to the University for admission to the MBA program. Students who fulfill all the requirements first receive the BLA and then the MBA.

MBA Common Required Courses (36)
GSB 511 Accounting for Managers .................... 4
GSB 512 Quantitative Analysis ......................... 4
GSB 513 Organization Behavior ....................... 4
GSB 523 Managerial Economics ....................... 4
GSB 524 Marketing Management ..................... 4
GSB 531 Managerial Finance ......................... 4
GSB 533 Aggregate Economic Analysis & Policy .. 4
GSB 534 Production and Operations Mgmt ........... 4
GSB 562 Seminar in General Mgmt & Strategy or GSB 567 Adv Sem International Business Mgmt or other approved culminating experience .......... 4

Advisor approved electives .................................... 24

One elective must satisfy the Orfalea College of Business’ international course requirement

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BLENDING BACHELOR OF LANDSCAPE ARCHITECTURE/MASTER OF CITY AND REGIONAL PLANNING PROGRAM (BLA/MCRP)
The blended BLA/MCRP Program is an accelerated route to the graduate professional degree in City and Regional Planning. Under this program a student can simultaneously graduate with a BLA and MCRP. Students shall meet the minimum eligibility requirements for a blended degree set down in the university catalog, complete a planning internship and the required MCRP classes. An updated list pertaining to which courses can be counted in the program is available from the City and Regional Planning Department. Students choosing this program shall make a request for admission to the department head. The CRP department head or graduate coordinator makes a determination of eligibility.

MCRP courses for the blended degree include: CRP 420, 510, 516, 518 or 513, 520, 525, 530, 552, and 554.