

# Master of Science in Environmental Sciences

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The Master of Science in Environmental Sciences is a multidisciplinary program. In addition to courses in chemistry and geology, there are opportunities for study in economics, geography, health sciences, management, and public administration. Students are admitted from numerous backgrounds, but generally with bachelor's degrees in scientific fields such as chemistry, geology, biology, or environmental science.

This program is designed to provide a broad background in sciences relevant to the environment, and is designed so that it can potentially be completed in two years.

The culminating experience in the M.S. in Environmental Sciences is either an internship coupled with an extended project and its defense, or a research thesis and defense of the thesis.

## Admission to the Program

Specific requirements for admission to classified graduate status are:

1. A baccalaureate degree from an accredited college or university;
2. Completion of an undergraduate major in chemistry, geology, or associated fields with one year of general chemistry and one full-term course in organic chemistry, physics and basic calculus (or methods in calculus). Students with undergraduate degrees in unrelated fields or without all required courses are also encouraged to apply and to discuss provisional admission with the Graduate Coordinator or potential faculty mentors. Provisional admission may require completion of preparatory coursework at CSUSB;
3. A cumulative undergraduate grade point average of at least 3.0 in all courses used for credit in the major;
4. A personal statement explaining the student's preparation for graduate study, goals in the program, potential areas of research, possible advisors, and professional goals upon graduation. Prospective students should contact potential advisors available at CSUSB noted on the program website;
5. Submission of three confidential letters of recommendation from people who are in a position to make relevant comments on the student's intent and potential for success in the program. At least two of the letters should be from current or former college or university faculty familiar with the student's scholarship and related activities;
6. Optional submission of scores from the Graduate Record Examination (GRE).

Students are considered for admission for the fall semester. Under compelling circumstances, applications may be considered for spring semester. Please consult the Graduate Coordinator for more information.

## Advancement to Candidacy

To be advanced to candidacy, the student must have:

1. Achieved classified status;
2. Been accepted by a major advisor from the M.S. in Environmental Sciences program;
3. Completed at least 6 semester units of work applicable to the degree program as a graduate student at this university, and with a minimum grade point average of 3.0 ("B");

4. Submitted a formal program of graduate course work, in addition to a project or thesis proposal, prepared in consultation with and approved by the student's thesis committee, and approved by the graduate coordinator;

Gained final approval of the program and of the candidacy itself by the Dean of Graduate Studies.

## Requirements for Graduation

1. A minimum of 30 semester units of acceptable graduate level work included in the formal program, with no less than 21 units completed in residence at this University and with at least 21 units gained from 5000- and 6000-level courses approved by the program;
2. Advancement to candidacy for the degree and approval of the specific program of courses;
3. A cumulative grade point average of "B" (3.0) or better in all graduate course work fulfilling the requirements of the program, and a grade of "C" (2.0) or better in each course in the program;
4. Completion and defense of an internship and project, or a thesis;
5. The graduation writing requirement is met upon successful completion of the project or thesis, if not met earlier;
6. Any additional general requirements not cited above and listed in [Graduate Degree and Program Requirements](#).

## Department Graduate Admissions Committee and Major Advisor

The Environmental Sciences Graduate Admissions Committee consists of the graduate program coordinator and two or more faculty members available for consultation. This committee will determine whether students are adequately prepared for graduate study in environmental sciences, and has general supervision over the work of students progressing toward the master's degree.

Each new graduate student will consult with the graduate program coordinator for academic advising until the student has been accepted by a major advisor. Early in their graduate studies, students in consultation with their advisor, will select a project or thesis committee including the advisor and at least two other appropriate faculty. When appropriate, one member of the committee may be a person from another department or another institution who has expertise in the area of proposed research.

All students are responsible for selecting their major advisor and, in turn, must be accepted by the major advisor. The student, in consultation with their committee, will develop a program of specific courses and an acceptable project research proposal based on the student's interests, abilities and preparation. The major advisor will direct the research and, where appropriate, supervise the internship. The program of courses and the project/research topic, as well as any subsequent modification of these, are subject to approval by the student's committee, the Graduate Coordinator, and the Dean of Graduate Studies.

Students enrolled in the graduate program wishing to take courses off campus and include them in the degree program must petition the Graduate Coordinator for approval, otherwise the course may not be accepted as part of the program. Extension courses at the X1000- to X9999-level are not applicable to the graduate program. Courses at the 3000- and 4000-level, other than those specified as possible electives in the program will be accepted only by written approval of the committee. Courses taken to satisfy quantitative or qualitative deficiencies cannot be applied toward a master's degree. Repeat of courses require approval of the Graduate Coordinator and will be granted only for serious and compelling reasons.

## Degree Requirements (30 units)

(Program Code: ENSI)

### Core Courses (15)

BIOL 5050	Biostatistics and Experimental Design	3
or HSCI 6210	Advanced Biostatistics for Public Health	
or NURS 6355	Biostatistics	
CHEM 5320	Atmospheric Chemistry	3
or GEOG 6400	Advanced Watershed Hydrology and Management	
ECON 3740	Economics of Climate Change	3
or ECON 3103	Environmental Economics	
GEOL 6000	Advanced Environmental Chemistry and Geosciences	4
or CHEM 6000	Advanced Environmental Chemistry and Geosciences	
Two units chosen from the following:		2
<b>GEOL 6900</b>	<b>Graduate Seminar</b>	
<b>or CHEM 6900</b>	<b>Graduate Seminar</b>	

### Elective Courses (6)

Choose a minimum of 6 units; at least one course must be 5000- or 6000-level (some of these elective courses have prerequisites that must be satisfied before the course can be taken).

BIOL 3200	Microbiology	
BIOL 3800	Ecology	
CHEM 5320	Atmospheric Chemistry (if not previously used as a core course)	
CHEM 5200	Instrumental Analysis	
CHEM 5753	Internship in Chemistry (if not previously used as a core course)	
CHEM 5903	Directed Laboratory Research	
CHEM 6752	Advanced Internship	
CHEM 6753	Advanced Internship	
GEOG 4880	Remote Sensing of the Environment	
GEOG 3710	Advanced Geographic Information Systems	
GEOG 3730	Geo-Spatial Analysis	
GEOG 4860	GIS and Socio-Economic Applications	
GEOG 6400	Advanced Watershed Hydrology and Management ( (if not previously used as a core course))	
GEOG 6500	Environmental Issues of Land Management	
GEOL 3700	Groundwater Hydrology	
GEOL 3750	Field Methods in Hydrology	
GEOL 4100	Engineering Geology	
GEOL 5280	Digital Mapping and GIS for Scientists	
GEOL 5400	Environmental Hydrology	
GEOL 5430	Isotope Geochemistry	
GEOL 5440	Environmental Geochemistry	
GEOL 5460	Low-temperature Geochemistry	
GEOL 5600	Earth Resources	
GEOL 5620	Site Investigation, Siting, and Case Histories in Engineering Geology	

GEOL 5753	Internship in Geology (if not previously used as core courses)	
GEOL 5951	Independent Study	
GEOL 5952	Independent Study	
GEOL 5953	Independent Study	
GEOL 6100	Graduate Geological Mapping	
GEOL 6752	Advanced Internship	
HSCI 3580	Principles of Toxicology	
HSCI 4578	Environmental Health Management	
MGMT 3350	Business, Ethics, and Society	
PA 3150	Society, Business, & Global Governance	
PA 5200	Sustainability Policy and Management	
PA 6720	Administrative Regulation	
<b>Culminating Experience (9)</b>		<b>9</b>
<b>Total Units</b>		<b>30</b>

## Culminating Experience (9 units)

The culminating experience in the M.S. in Environmental Sciences is either an internship coupled with an extended project and its defense, or a research thesis and defense of the thesis.

## Internship and Project Option (9 units)

CHEM 6940	Graduate Research Methods and Design	3
or GEOL 6940	Graduate Research Methods and Design	
or SSCI 6950	Directed Graduate Studies	
CHEM 5753	Internship in Chemistry	3
or GEOL 5753	Internship in Geology	
or GEOG 5753	Internship in Geography	
CHEM 6960	Graduate Project in Chemistry	3
or GEOL 6960	Graduate Project	
or SSCI 6973	Graduate Project or Thesis	
<b>Total Units</b>		<b>9</b>

## Research and Thesis Option (9 units)

CHEM 6940	Graduate Research Methods and Design	3
or GEOL 6940	Graduate Research Methods and Design	
or SSCI 6950	Directed Graduate Studies	
CHEM 6950	Directed Graduate Research in Chemistry	3
or GEOL 6950	Directed Graduate Research in Geology	
or SSCI 6950	Directed Graduate Studies	
CHEM 6970	Graduate Thesis	3
or GEOL 6970	Graduate Thesis	
or SSCI 6973	Graduate Project or Thesis	
<b>Total Units</b>		<b>9</b>