Career Pathways in Coastal Environmental Studies at Oxnard College

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Introduction

Do any of these characteristics describe you?

- A fascination with the natural wonders of the world
- A yearning to help society overcome natural calamities
- A love of the outdoors
- A joy in improving your immediate habitat

If so, these are clues that an environmental specialization may be right for you. Demonstrating this passion early will raise your application to the top of the stack for academic transfer and jobs. Check out “strategies for success” at the end of this brochure.

Many jobs are on the rise in “green” STEM careers, those related to environmental studies. These “green jobs” are increasing, in part, due to the aging of the environmental work force. Many of the environmental agencies and the jobs within these governmental offices were created by law in the 1970’s. The thousands of professionals that were hired at that time are now eligible for retirement. Their departure from the public sector will open many entry-level jobs in the next decade. Furthermore, concerns ranging from public health to climate change are fueling legislative funding for environmental agencies and projects. As more people migrate from cities to rural areas, small towns develop “urban sprawl,” requiring environmental planners and urban foresters. As the burgeoning human population continues habitat degradation, the need for environmental professionals will rise. A small sample of current job openings appears in the section titled Careers.

Environmental Studies is multidisciplinary and interdisciplinary by definition. This means an Associate degree in Environmental Studies is a great start for a variety of career paths including any of the sciences, law, engineering, policy, planning
or recreation. Your imagination is the limit. Let this brochure help you begin your exploration of “green” career pathways.

Environmental work can be immensely rewarding and exciting. At left, Shannon Klemann (Channel Islands High School Marine Science Teacher) directs OC students Joseph Portero and Lorraine Hawes as they learn techniques to collect water samples from the NOAA Research Vessel *Shearwater* near Santa Cruz Island. The courses required for your degree will help you learn to ask questions, make observations, evaluate evidence, and solve problems – life skills useful in any career.

Most senior professionals that have chosen this path will tell you that they had no concept of their ultimate position when they chose their degree program. Many have changed job titles ten or more times as they progressed from intern to technician to senior professional. Most will emphasize the importance of taking opportunities for professional growth and advancement as they appear. At right are OC alumni Anne Serrano and Robert Kessler in the OC microbiology laboratory shortly before they transferred to Humboldt State University.

As a student in environmental studies, you will be joining a group of professionals with a life-long commitment to our environment. Together we can restore our natural habitats, develop sustainable lifestyles, and reduce the damage caused by human impacts.
Coastal Environmental Studies Program

Program Description

The primary goals of the Coastal Environmental Studies Program are:

- to provide students an understanding of the natural resources of coastal communities and humanity’s relation to them;
- to provide students the opportunity for critical analysis regarding humanity’s need, use and effect on coastal resources;
- to facilitate career preparation with organizations focused on issues related to natural resources from a scientific perspective;
- to equip students with the skills and concepts to successfully use the scientific method while studying and solving problems related to local natural resources;
- to prepare students for successful transfer into a related program or field of study at a four-year academic institution.

Consistent with these goals, the objectives of the degree program in Coastal Environmental Studies are to support and promote:

- the completion of lower-division coursework required for a Bachelor of Arts or a Bachelor of Science in Environmental Studies or Environmental Science and Resource Management;
- the exploration of the science and conservation of the coastal resources in our region;
- the examination of issues related to sustainable use of coastal resources in an interdisciplinary and multidisciplinary course of study;
- the exploration of the variety of career pathways related to the study of coastal resources, and
- the personal, intellectual, and social development of students attracted toward these fields of study as it relates to improving the sustainable use of coastal resources from the local to the global scale.

This curriculum will provide students at Oxnard College with the knowledge and skills to transfer to several related degree programs at universities. In the photograph at right is Brianna Jones from OC, a 2010 McNair Scholar at UCSB. In addition, the Associate of Science Degree Program in Coastal Environmental Studies will prepare students for employment at
a technician level for jobs at environmental consulting firms, government agencies, research corporations, and educational institutions. In summary, the curriculum of the majors in Coastal Environmental Studies offers students new and challenging perspectives that will serve them well academically, personally, and professionally.

Facilities

The college has separate laboratories for biology, chemistry, geology/geography, physics, microbiology, inorganic chemistry, organic chemistry, marine biology and oceanography. The LS Building at OC has student research space and houses life science, geological and microbiological study specimens. The marine laboratory is a part of the OC Marine Center and Aquarium at Channel Islands Harbor which also includes a lecture room, activity room, live and dry exhibits and office space.

The base of operations for the coastal restoration project is the Environmental Restoration Science Center owned by RRI/GenOn Energy and operated by Proteus SeaFarms. OC students study the culture and natural history of native plants and animals at the Center’s lab. At right are Gonzalo Andrade, Dr. Lorraine Buckley, Dee Anderson, Bryan Burland and Ashley Sarver studying the behavior of abalone.

Faculty

The college currently employs seven full-time science faculty specializing in the following disciplines required for the Coastal Environmental Studies degrees: Tom O’Neil in Geology and Oceanography, Lorraine Buckley in Biology and Marine Studies, Shannon Newby (photo, left) in Biology and Marine Studies, Jim Harber in Biology and Microbiology, Luanne Crockett in Inorganic Chemistry, Yong Ma (photo, right) in Organic Chemistry, and Chris Mainzer in Geography.
### Associate of Sciences in Coastal Environmental Studies

#### Resource Management Core Courses (3 units required)
- **ESRM R100** Environmental Science and Resource Management 3

#### Field Studies/ Applied Resource Management (3 units required)*
- **MST R122** Aquaculture 4
- **MST R160** Introduction to Research 4
- **MST R175** Marine Sampling Techniques and Field Studies 3
- **MST R170** Biological Marine Resource Management 1
- **MST R178** Geological Marine Resource Management 1
  (MST R170 and R178 are co-requisites)
- **MST R190** Experiential Education in Marine Studies 1
- **MST R195** Communicating Ocean Science 3
- **MST R198A-Z** Short Courses in Marine Studies 0.5 – 10
- **MST R199** Directed Studies in Marine-Related Topics 1 - 3

#### Earth Science (4 units required)
- **GEOL R101** Physical Geology 3
- **GEOL R101L** Physical Geology Laboratory 1
- **GEOL R103** Introduction to Oceanography 3
- **GEOL R103L** Introduction to Oceanography Laboratory 1
  (GEOL R101 is required for a BS in ES at UCSB)

#### Life Science (5 units required)
- **BIOL R122** Principles of Biology II 4
- **BIOL R122L** Principles of Biology II 1

#### Mathematics (5 units required)
- **MATH R106** Mathematics for Business Applications 5
- **MATH R120** Calculus with Analytic Geometry I 5
  (MATH R120 is required for a BS in ES at UCSB)

#### Physical Science (5 units required)
- **CHEM R122** General Chemistry II 5

#### Social Science (3 units required)
- **ECON R101** Introduction to the Principles of Macroeconomics 3
- **ECON R102** Introduction to the Principles of Microeconomics 3
  (both are required for a BS in ESRM at CSUCI)

**Total Required Units for AS in Coastal Environmental Studies**  28
Associate of Arts in Coastal Environmental Studies

Resource Management Core Courses (3 units required)
ESRM R100   Environmental Science and Resource Management 3

Field Studies/ Applied Resource Management (3 units required)*
MST R100   Marine Biology 3
MST R100L  Marine Biology Laboratory 1
MST R122   Aquaculture 4
MST R160   Introduction to Research 4
MST R175   Marine Sampling Techniques and Field Studies 3
MST R170   Biological Marine Resource Management 1
MST R178   Geological Marine Resource Management 1
MST R190   Experiential Education in Marine Studies 1
MST R195   Communicating Ocean Science 3
MST R198A-Z Short Courses in Marine Studies 0.5 - 10
MST R199   Directed Studies in Marine-Related Topics 1 - 3

Earth Science (4 units required)
GEOL R101   Physical Geology 3
GEOL R101L  Physical Geology Laboratory 1
GEOL R103   Introduction to Oceanography 3
GEOL R103L  Introduction to Oceanography Laboratory 1
(GEOL R101 is required for a BS in ES at UCSB)

Life Science (4 units required)
BIOL R101   General Biology 3
BIOL R101L  General Biology Laboratory 1

Mathematics (4 units required)
MATH R105   Introductory Statistics 4

Physical Science (5 units required)
CHEM R122   General Chemistry II 5

Social Science (3 units required)
ANTH R102   Introduction to Cultural Anthropology 3
GEOG R102   World Cultural Geography 3

Total Required Units for AA in Coastal Environmental Studies 26
Transfer Applicability

Excluding Applied Courses* (three units), all courses required for the AA Major are also required for the Bachelor of Arts Degree in Environmental Studies at the University of California Santa Barbara (UCSB), and all courses required for the AS are also required for the Bachelor of Science Degrees in Environmental Science and Resource Management at California State University Channel Islands (CSUCI) and in Environmental Studies at the UCSB. Additional courses at OC that are required for these four-year degrees are shown in yellow on the flow charts that follow and are listed below:

For a BA in ES at UCSB the following 16 lower division units are also required:
5 additional units of Mathematics:
   MATH R106  Mathematics for Business Applications  5 units
   OR MATH R120  Calculus with Analytic Geometry I  5 units
3 additional units of social sciences:
   ANTH R102  Introduction to Cultural Anthropology  3 units
   OR GEOG R102  World Cultural Geography  3 units
3 units of Economics:
   ECON R101  Introduction to the Principles of Macroeconomics  3 units
   OR ECON R102  Introduction to the Principles of Microeconomics  3 units

For a BS in Environmental Science & Resource Management at CSUCI the following additional lower division units are also required:
   MATH R105  Introductory Statistics  4 units
AND an additional course in Economics:
   ECON R101  Introduction to the Principles of Macroeconomics  3 units
   OR ECON R102  Introduction to the Principles of Microeconomics  3 units

For a BS in Environmental Studies at UCSB the following lower division courses are also required:
   BIOL R120  Principles of Biology I  4 units
   BIOL R120L  Principles of Biology I Laboratory  1 units
   PHIL R107  Introduction to Logic  3 units
   PHYS R101  College Physics 1  4 units
   PHYS R101L  College Physics 1 Laboratory  1 units
   PHYS R102  College Physics 2  4 units
   PHYS R102L  College Physics 2 Laboratory  1 units
   MATH R105  Introductory Statistics  4 units
   MATH R121  Calculus with Analytic Geometry II  5 units
   MATH R125  Differential Equations with Linear Algebra  5 units
   GEOG R102  World Regional Geography  3 units
Ormond Beach Native Plant Restoration
An OC Environmental Studies Project

Background
The Ormond Beach dune and wetlands complex represents a significant natural resource for the people of Ventura County and California. The sand dune system of Ormond Beach stretches from Port Hueneme to Mugu Lagoon, Ventura County. This environment is a relic of much larger coastal dunes that once stretched from Ventura to Mugu Lagoon. The Ormond Beach dunes and wetlands is one of the few functioning dune-building systems left in southern California. It is home to federally and state listed endangered bird and plant species including the Least Tern (Sternula antillarum), Western Snowy Plover (Charadrius alexandrinus nivosus), Belding's Savannah Sparrow (Passerculus sandwichensis beldingi), and Salt Marsh Birds Beak (Cordylanthus maritimus Benth. ssp. maritimus).

In the 1970s a section of Ormond Beach, adjacent to the Ormond Beach Generating Station, was planted with non-native Ice Plant and Myoporum laetum to control sand movement from the beach. In the previous decades the beach was heavily used as a road and by off-road vehicles. Little relief or natural vegetation remained. With exclusion of vehicles from the beach in the 1990s, regrowth of vegetation began, slowing the movement of sand and creating new dunes. Iceplant (Caprobrotus edulis) and Myoporum laetum still persist in the area, competing for space and water with the native plants.

Restoration of Native Plants at Ormond Beach
The Ormond Beach Native Plant Restoration project will introduce students to field biology and resource management. The project will provide hands-on learning experiences that will develop job skills, enable students to participate in environmental stewardship, and integrate community volunteers. Unlike most multi-year field projects that require years of development before any results are realized, this project will provide students with the unique opportunity for
immediate observation of the dramatic restoration of the natural habitat as a direct result of their efforts.

The coastal restoration program was begun with Oxnard College students from MST 160, under the direction of Dr. Lorraine Buckley and Tom McCormick (in photo with students Holly Bovey, Amber McCauley, and Afausto Asitllero) in the 2010 Spring semester. The restoration program controls non-native plants thus improving the quality, function, and diversity of the dune ecosystem at Ormond Beach. The initial restoration effort is located on a half-acre site adjacent to the Ormond Beach Generating Station. OC students began the project by mapping existing vegetation, removing non-native plants, and developing a seed bank of local native plants. Native plants for restoring beach and wetland areas are cultivated by students at the lab. In 2010 OC students identified four endangered species at the restoration site: a fish, two bird species, and a hemi-parasitic plant.

**Project Advisors**
The following individuals are advising the development of the project:
Bill Baker, Environmental Outreach, RRI Energy
Peter Brand, Director, California Coastal Conservancy
Lori Buckley, Professor, Oxnard College
Rick Burgess, Environmental Biology, California Native Plant Society
Julie Bursek, Marine Education, Channel Is Nat’l Marine Sanctuary
Sarah Chaney, Botanist, Channel Islands National Park
Chris Dellith, Sr. Fish & Wildlife Biologist, U.S. Fish and Wildlife Service
Kate Eschelbach, Ed. & Outreach Coordinator, U.S. Fish and Wildlife Service
Richard Handley, Land Manager, Nature Conservancy
Cynthia Hartley, Ornithology, Snowy Plover Nest Monitor
Chris Kahler, Ornithology, VC Shore Birds Docent Program
Tom McCormick, Environmental Restoration, Channel Islands Marine Resource Institute & Proteus International
John Mhiatov, Manager, RRI Energy
Trish Munro, Botany, California Native Plant Society
Tom O’Neil, Oceanography, OC Marine Center and Aquarium & CIMRI
Reed Smith, Ornithology, Audubon Society
Careers in Environmental Studies

Environmental Studies is a multidisciplinary major with a myriad of career pathways available. So-called “green careers” are in the fastest growing segment of our society both in number of jobs and types of jobs. Many different positions, each with slightly different job titles and duties, exist in each of the career topics explored below. Let this be a starting point for your career exploration.

Some exciting careers involve combining science and non-science disciplines. Put together ecology and English to become a technical writer or speech writer. Combine environmental science and art to go into scientific illustration. Link resource management and history to become an environmental historian. Pair ecology and law to practice environmental law. Study conservation and religion/philosophy as an environmental ethicist. Connect resource management and political science for environmental policy and planning. Successful students are increasingly choosing a double major for the bachelor degree.

Traditionally, jobs in environmental studies have been found in three sectors: academics, government (including the military), and business. In the past, academia was been the largest market and business the smallest. Surveys reported in the journal Science indicate that growth areas are mostly in for-profit business and government sectors. Even researchers and professors at universities now usually have alliances with companies outside of academia.

Sample jobs for this brochure were chosen by searching online during the summer of 2010 using each career topic as a keyword. Job descriptions were summarized from advertisements on Craig's List and government websites such as usajobs.gov and noaa.gov. Each career topic includes an advertised job title, employer, employer website (if available), required educational qualifications, and job description. Career topics are arranged in alphabetical order.

Anthropology

*Cultural Resources Assistant,* Michael Brandman Associates
Bachelor Degree in Anthropology with courses or experience in archeological or historical or anthropological environmental assessment.

The Cultural Resources Assistant conducts site visits, photographs historic properties, and writes reports relative to Section 106 compliance.
Chemistry

*Junior Environmental Chemist*, EMAX Laboratories, Inc:  [www.emaxlabs.com](http://www.emaxlabs.com)

Bachelor Degree in Chemistry or related Science with environmental science classes or previous experience in an environmental laboratory

An Environmental Chemist will collect samples from various field locations, perform chemical testing for water and soil samples, keep accurate records, and write reports.

Conservation

*Senior Field Organizer for Sierra Nevada Resilient Habitats*, Sierra Club

Some college-level knowledge of conservation biology

This Organizer will coordinate grassroots member in support of policies to protect natural resources of the Sierra Nevada range in the face of climate change. Work will include analysis of likely impacts to ecosystems from climate change and development of strategies to preserve public and private land. Public education will be a key responsibility including media coverage and social networking.

Education

Most states will allow anyone with a Bachelor of Science degree to be on a waiver for two to three years to teach middle or high school subjects related to their degree while they complete the requirements for a teaching credential or teaching certificate. Of course, applicants that already have the credential/certificate and/or experience will have the competitive edge.

Engineering

*Environmental Engineer I* – Metropolitan Washington Council of Governments

These professionals perform research, coordinate planning, and prepare reports on engineering support for water, energy, and waste infrastructure and security.

Environmental Compliance

*Environmental Protection Specialist*, U. S. Environmental Protection Agency:  [www.epa.gov](http://www.epa.gov)

Bachelor Degree in Environmental Studies

These regulatory agents educate professionals, corporations, and property owners about environmental laws and regulations. They also investigate complaints and suspected violations such as illegal dumping and inaccurate labeling.
Environmental Science

*Microbiology Technician*, ABC Laboratories:  [www.abclabs.com](http://www.abclabs.com)

College Student in Environmental Studies or related Science with at least one Microbiology or Marine Biology course with laboratory completed.

Technicians collect and test water samples, prepare media, sterilize equipment, calibrate meters, collect and survey plankton samples, keep records and order supplies.

Fisheries and Wildlife

*Fisheries Technician*, United Water District:  [www.unitedwater.org](http://www.unitedwater.org)

College Student in Environmental Studies, Biology, or related Science

Technicians assist in the operation and maintenance of fisheries facilities such as fish ladders by dams. Technicians monitor flow over ladders, survey and relocate stranded fish, update electronic records, and write reports.

Forestry

*Verification Forester*, Scientific Certification Systems:  [www.scscertified.com](http://www.scscertified.com)

Bachelors degree in forestry or natural resources

The Verification Forester conducts audits related to the ISO Greenhouse Gas Program including projects of forest management, reforestation, reduced emissions, and agricultural land management. Job sites may be throughout the world and include document review, timber inventory, interview, and reporting.

Fundraiser/Development Officer

*Online Fundraiser Officer*, Earthjustice Law Firm

Some college coursework especially in environmental studies

Fundraisers use e-messaging, media coverage, and social networking to raise funds to preserve our natural resources and environmental health. Responsibilities include identification of emerging issues, development of software, review of copy, development of press releases, and coordination of staff. Excellent communication skills are necessary to create and launch persuasive, successful campaigns.
Geology

Senior Environmental Geologist, Envirosolve Corporation: [http://www.envirosolve.com](http://www.envirosolve.com) Bachelor of Science in Geology

The Geologist collects and interprets environmental data on geological core borings, supervises well installations, oversees soil remediation projects, collects soil, rock, and groundwater samples, analyzes samples, and prepares reports.

HAZMAT: Hazardous Materials Management

Environmental and Safety Specialist, Chemical Data Management Systems
Bachelor Degree in an environmental field strong in math and science, bilingual, with teaching or training experience

Professionals with HAZMAT training plan and manage the safe removal of dangerous substances from our living environments such as asbestos from buildings and chemical spills on highways. In addition they test for air, water and soil contamination, develop environmental safety policies, acquire permits, perform site remediation, train employees and write reports.

Natural Resource Management

Natural Resource Management Specialist/Fish Biologist, NOAA: [www.usajobs.gov](http://www.usajobs.gov)
Bachelor degree in Environmental Studies or Biology with courses in marine science, fisheries or zoology, and environmental management

The Natural Resource Management Specialist is responsible for stewardship of our nation's living marine resources, and the habitat on which they depend, through scientific research, management, outreach, and enforcement. Develop and manage domestic and international programs supporting coastal communities that depend upon them, while providing safe and healthy seafood to consumers and recreational opportunities for the public.

Parks and Recreation

Park Ranger II, East Bay Regional Park District
Associate Degree, Natural Resources, Environmental Studies or related major

Park Rangers support the operation, development, and natural resource protection of parklands, facilities and trails

Public Health

Associate Director for Health, Environmental Protection Agency: [www.epa.gov](http://www.epa.gov)
Doctoral Degree in Environmental Science

Directors for Health assess environmental risks on human health and the ecological effects. Duties include planning, implementation, and management of health risk assessments and related research programs.
STRATEGIES FOR SUCCESS

Your Competitive Edge

Once you have chosen a path toward a career topic such as Coastal Environmental Studies, make choices that support your career choice in all your activities including your leisure time and part-time work. Choose work that helps you develop job skills instead of choosing a part-time job with the highest pay rate. Remember that everything you do now helps build your resume. Successful applicants will have cross-disciplinary training. You can demonstrate a commitment to environmental studies by:

- Participating in college, regional, and national organizations
- Volunteering at local facilities such as the Marine Center and Aquarium
- Enrolling in related workshops and short courses
- Enrolling in summer field courses
- Attending community workshops and lectures
- Writing articles for your school newspaper
- Improving your photography skills, especially in the wild
- Expanding your computer literacy
- Volunteering at local conservation efforts such as
  - The Ormond Beach Restoration Project
  - Beach clean-ups
  - Grunion Greeters
  - Ventura County Shorebirds

Internships

Why do an internship? Students receive college credit and/or income while receiving supervised practical experience in a professional setting. For example, the Environmental Restoration Science Center offers training in beach dune and wetland native plants (such as the Beach Primrose planted by OC students pictured at left). Good academics, coupled with sound experience from summer employment or internships are always attractive to prospective employers and transfer schools. Students who have experienced an internship secure employment (often with their former internship provider) at a significantly higher rate than other students. The internships and similar experiences should be relevant to the student’s educational and career goals.
Government agencies, non-profit organizations, and for-profit corporations have many programs that provide paid educational and research experiences and internships. These programs have eligibility requirements that vary from one to another. Students will need to go to the following link(s) and select the program that interests them. Each program's web page has instructions on eligibility requirements, application submission, and a link to the online application or a printable application. The program's web page also provides the name and e-mail address of a program specialist who can help answer any questions that students may have concerning eligibility requirements or submitting an application for a particular program. When e-mailing questions to the program specialist the program name should be included in the e-mail. When students choose a program that interests them, they will need to CAREFULLY read the eligibility requirements. Many of the programs administered by government agencies are open only to U.S. citizens or permanent resident aliens.

**Environmental Career Opportunities**

[www.ecojobs.com/environmental-internships.htm](http://www.ecojobs.com/environmental-internships.htm)

Primarily an online bulletin board for jobs, this site offers a good selection of internships as well. Many are based on the east coast.

**Oak Ridge National Laboratory (HERE).**

[http://www.orau.gov/hereatornl](http://www.orau.gov/hereatornl) - This web page is for the Higher Education Research Experiences (HERE).

**The Department of Energy's Science Undergraduate Laboratory Internship (SULI)**

[http://www.scied.science.doe.gov](http://www.scied.science.doe.gov) - The SULI program is for undergraduates and graduating seniors. At this site students can also find applications for the Community College Institute (CCI) and the Pre-Service Teacher (PST) programs.

**The Nuclear Engineering Student Laboratory Synthesis (NESLS)**

[www.ornl.gov/sci/nuclear_science_technology/nstip/nesls.htm](http://www.ornl.gov/sci/nuclear_science_technology/nstip/nesls.htm) - The Nuclear Engineering Student Laboratory Synthesis (NESLS) program is a cooperative research initiative geared toward students working in physics and nuclear engineering applications at a multidisciplinary national laboratory.

**ORISE**

[www.see.orau.org](http://www.see.orau.org) - This link is the gateway to many of the education and research experiences offered through ORISE.

**The Student Conservation Association**

[www.thesca.org/](http://www.thesca.org/) - SCA provides hands-on conservation service opportunities. Their web-page has several links to explore in their organization as well as pages of internships at other organizations.
The Campaign for America’s Wilderness  
[www.leaveitwild.org](http://www.leaveitwild.org) - Supported by the Pew Environmental Group

The Ecology Project  
[www.ecologyproject.org](http://www.ecologyproject.org) - Projects include international sites in Costa Rica, the Galapagos Islands, and Mexico.

The Conservation and Land Management Internship Program  
[www.clminternship.org](http://www.clminternship.org)  
These five-month paid internships to assist professional staff at the Bureau of Land Management, National Park Service, U.S. Forest Service, and other federal agencies. Most of these internships are located in one of the thirteen western states including Alaska.

Environmental Careers Organization  
short and long-term internships

National Science Foundation  
The National Science Foundation provides funds to colleges and universities nationwide each year to engage undergraduate students in research as a part of their education in the sciences. Many of these internships are advertised on this website.

Institute for Tropical Ecosystem Studies  
[http://web.ites.upr.edu/reu/](http://web.ites.upr.edu/reu/)  
This site describes a summer internship program on Puerto Rico.

School for Field Studies  
[www.fieldstudies.org](http://www.fieldstudies.org)  
This institution is associate with Northeastern University in Massachusetts and offers short courses in the summer and full-length courses in many natural habitats around the world. The research experiences are rich with experiential learning as well as traditional academic reading and discussion. Course credit is awarded and can be transferred into most science programs nationwide. Paid internships are only available for students that have a Bachelors degree.
Networking/Fact Finding

Know your Faculty – Talk with faculty at your college and then faculty at potential transfer institutions about careers specific to their expertise. Also, talk with students in the transfer programs that interest you at the schools you plan to attend. If you are willing to spend the time and money to get a degree at a transfer institution, you should be motivated to visit that campus several times prior to your application to be sure it is a good fit for your goals, your personality and your habitat requirements.

Below is a list of those at OC with experience related to environmental careers:

- Abram, Mike  environmental recreation
- Anderson, Dee  Channel Islands’ naturalist
- Bassey, Ed  environmental law
- Buckley, Lorraine  restoration ecology, coral reef fishes
- Crockett, Luanne  water chemistry
- Flint, Kevin  environmental science
- Harber, James  environmental microbiology
- Ma, Yong  organic environmental contaminants
- Mainzer, Christine  GIS: geographical information system
- McCormick, Tom  fisheries
- Newby, Shannon  filter feeder ecology, marine education
- O’Neil, Tom  commercial diving, oceanography of waves
- Swig, Brian  marine aquarist
- Ulrich, Rachel  public health
- Ziegler, Neil  marine conservation, ornithology

Professional Meetings and Conferences

Annual regional or national meetings of professional organizations are a great way to familiarize yourself with the scope and variety of projects and job titles in a specific discipline. Most organizations will have a student price for attendance of the conference and will charge less for a single day attendance. (At right, OC students Brie Billups and Crystal Buckley presented their poster at Western Society of Naturalists’ meeting in 2009). Take business cards to the meeting (you can print these at home) and introduce yourself to people. Talking is a great way to develop your understanding of your own goals and how others can help you achieve those goals. Look for a jobs board at the conference. Often, jobs are announced here and sometimes nowhere else – professionals know they will find truly interested applicants at a conference.
Once you have attended the conference, you will usually be considered a member (dues are often rolled into the conference registration fees). Now list this organization membership on your resume. Explore the internet to find a group with your interests. Some examples of organizations you might consider:

- American Zoo and Aquarium Association
- Ecological Society of America
- Society for Conservation Biology
- Western Society of Naturalists

Some organizations are less formal and often have much more active local membership activities. These will help build your professional network while engaging you in conservation activities. Such organizations include:

- Audubon Society
- California Native Plant Society
- Environmental Defense Fund
- Sierra Club

Research

There are many opportunities for students to participate in research experience for undergraduates (REUs) to enhance the depth of knowledge learned in the classroom. A good starting place for such experience is MST/ESRM R160 Introduction to Research. For off-campus opportunities check out the website: [www.nsf.gov/crssprgm/reu/reu_search.cfm](http://www.nsf.gov/crssprgm/reu/reu_search.cfm)

Other sites OC STEM students have attended for internship experience in research include:

- Cornell University
- CSUCI Biosphere Institute
- Environmental Protection Agency
- Johns Hopkins University
- Purdue University
- Scripps Institution of Oceanography
- Stanford University
- UCSB Nanotechnology Institute

Explore Your Options

Use Career Locker or some other online resources to explore the many career topics related to environmental studies. Below find links that may be of help:
Develop Attributes for Success

Most importantly . . . adopt a personality for success. Be:

**Inquisitive** - explore, ask questions

**Appreciative** - show gratitude for those who help you along the way

**Tenacious** - be persistent; don’t give up

**Confident** - show initiative and self-assurance

**Respectful** - value experience and knowledge

**Courageous** - take risks/opportunities as they arise

**Happy** - choose work that you enjoy

Endangered Salt Marsh Bird’s Beak at OC’s wetland restoration site
OC Academic Path To
AA in Coastal Environmental Studies
and transfer to UCSB for
BA in Environmental Studies

- Required for AA at OC in Coastal Environmental Studies
- Required for BA at UCSB in Environmental Studies
- May be completed during high school; some are AP equivalent

No prerequisite

- ESRM R100
- ESRM/MST R160

No prerequisite
- GEOL R103/L*

No prerequisite
- ECON R102*

No prerequisite
- ANTH R102*

No prerequisite
- PHIL R107*

- MATH R105
- MATH R115
- MATH R118
- MATH R116
- MATH R120

No prerequisite
- BIOL R101/L

* Other courses may fulfill this requirement; check www.assist.org or AgileGrad
OC Academic Path To
AS in Coastal Environmental Studies
and transfer to UCSB for
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- No prerequisite
- No prerequisite

1. MATH R11
2. MATH R14
3. GEOL R103/L*
4. ECON R102
5. PHIL R107*
6. GEOG R102
7. PHYS R121
8. PHYS R122
9. MATH R121
10. MATH R120
11. MATH R105
12. MATH R118
13. MATH R115
14. CHEM R110
15. CHEM R112
16. CHEM R120
17. BIOL R101**
18. BIOL R120/L
19. BIOL R122/L

* Other courses may fulfill this requirement; check www.assist.org or AgileGrad
** BIOL R101L recommended
OC Academic Path To
AS in Coastal Environmental Studies
and transfer to UCSB for
BS in Aquatic Biology

** Required for AS at OC in Coastal Environmental Studies
- Required for BS at UCSB in Aquatic Biology
- May be completed during high school; some are AP equivalent

- **  BIOL R101 ** recommended

No prerequisite

- **  GEOL R103/L **

No prerequisite

- **  ECON R102 **

* Other courses may fulfill this requirement; check www.assist.org or AgileGrad

** BIOL R101L recommended
OC Academic Path To AS in Coastal Environmental Studies and transfer to UCSB for BS in Ecology and Evolution

- Required for AS at OC in Coastal Environmental Studies
- Required for BS at UCSB in Ecology and Evolution
- May be completed during high school; some are AP equivalent

- ESRM R100
  - ESRM/MST R150
  - No prerequisite
  - GEOL R103/L*

- MATH R105
  - MATH R118
  - No prerequisite
  - ECON R102 *

- MATH R114
  - MATH R115
  - MATH R111

- CHEM R110
  - CHEM R120
  - CHEM R122

- BIOC R101 **
  - BIOC R120/L
  - BIOC R122/L

* Other courses may fulfill this requirement; check www.assist.org or AgileGrad
** BIOC R101L recommended
OC Academic Path To
AS in Coastal Environmental Studies
and transfer to CSUCI for
BS in Environmental Science and
Resource Management

- Required for AS at OC in Coastal Environmental Studies
- Required for BS at CSUCI in Environmental Sci and Resource Management
- May be completed during high school; some are AP equivalent

No prerequisite

GEOL R101/L*

ECON R101

No prerequisite

ECON R102 *

* Other courses may fulfill this requirement; check www.assist.org or AgileGrad

** BIOL R101L recommended

*** Recommended by CSUCI
OC Academic Path To
AS in Coastal Environmental Studies
and transfer to HSU for
BS in Biology: Environmental

- Required for AS at OC in Coastal Environmental Studies
- Required for BS at HSU in Biology: Environmental
- May be completed during high school; some are AP equivalent

- ESRM R100
  - No prerequisite
  - ESRM/MST R160

- GEOL R103/L*
  - No prerequisite

- ECON R102 *

- MATH R11
- MATH R14
- MATH R115
- MATH R116
- MATH R120
- MATH R121
- PHYS R101/L

- CHEM R110
- CHEM R120
- CHEM R122
- BIOL R101 **
- BIOL R120/L
- BIOL R122/L

* Other courses may fulfill this requirement; check www.assist.org or AgileGrad

** BIOL R101L recommended
As you increase your level of education, you are qualified for higher level jobs.

In some jobs, years experience can substitute for graduate degrees.