

The program is comprised of four concentrations of study:

- *Coastal and Estuarine Ecology* – focuses on near-shore and estuarine processes important for living marine resources and environmental quality and offers opportunities for specialization in fisheries, coastal plain, wetland, marine and estuarine populations, communities and ecosystems, water quality, and land/water interactions;
- *Coastal Geosciences* – emphasizes coastal and atmospheric processes, geomorphology, and water resources as they affect the use and development of the coastal margin and provides opportunities for specialization in atmospheric science, coastal geology and sedimentary processes, hydrology, and biogeochemistry;
- *Coastal Social Science* – focuses on the human dimensions of environmental resources management and offers opportunities for specialization in planning; social, cultural and institutional behavior as these relate to resource development and management; sustainable tourism; adaptation to climate change and hazards; and maritime cultural heritage.
- *Coastal and Marine Economics and Policy* – highlights economic analysis of coastal resource management issues and the implications of coastal and marine policy choices. Emphasis is on development of analytical and quantitative research methods with application to valuation of the coastal natural capital stock and ecosystem services it provides, fisheries management, environmental policy, and economics of coastal hazards and climate change.

Students choose a primary concentration and a secondary concentration. Those who select either ecology or geosciences as their primary concentrations are required to choose a secondary concentration of social science or economics and policy; students choosing the social science or economics and policy as a primary concentration are required choose a secondary concentration in either ecology or geosciences.

### **Program Requirements**

The program requires a minimum of 68 semester hours (SH) beyond the baccalaureate degree. Students entering the program with a Master's Degree from ECU or another institution may apply up to 24 semester hours approved by the students committee to the 68 hour requirement after consultation with the CRM Director. The actual number of hours will be determined by Masters level and transfer credits earned and approved by the student's committee; mastery of the subject matter demonstrated through examination and research; and gaps identified in areas such as skills and methods required to conduct research or teach in the student's declared area of concentration.

All students accepted to the program must take a common set of foundation courses (44 SH) and pass a core competency examination (CCE) no later than the third semester following admission. This written examination is designed to confirm the student's mastery of core

concepts and processes and academic readiness to advance. The core competency exam will be prepared and administered by faculty teaching in the core curriculum.

Upon successful completion of this examination the student, in consultation with the major advisor and PhD committee will prepare a Plan of Study that identifies the primary concentration area (minimum 18 SH beyond the core), and secondary concentration area (minimum 6 SH beyond the core), the area of study within these concentrations, specific courses, and a schedule for completing them. The intent is for the student to develop the in-depth knowledge required to compete for academic positions as well as the breadth required to pursue careers in the public and private sectors.

### **Major Advisor and Student Committee**

The student's academic committee shall be comprised of a major advisor from the area of the student's dissertation research; a second member from the student's complementary track; two members qualified to provide technical guidance in the area of the dissertation; plus a recognized expert on the thesis topic external to the university. This committee should be in place and approved by the program director no later than the end of the student's third semester in the program.

### **Curriculum**

#### ***Foundation Courses***

All students accepted to the program must take the following courses. The student's advisor, in consultation with the program director, may certify that courses taken at another accredited institution meet a foundation requirement, and/or be accepted as transfer credits counted toward the student's semester hour requirements.

***BIOL 7005.*** Coastal Ecological Processes (4). Fundamental concepts of chemistry and biology within the context of the coastal zone with emphasis on local ecosystems

***ECON 7010.*** Coastal and Marine Economics and Policy (3). Economic theory of coastal and marine environmental management and policy.

***GEOL 7002, 7003.*** Coastal Geoscience (3) and Coastal Geoscience laboratory (1). Fundamental concepts of geological and physical oceanographic principles of coastal systems.

***CRM 7005.*** Human Dimensions of Coastal Management (3). Concepts, theories, and frameworks of human values, attitudes and behavior related to coastal resources.

***CRM 7006.*** Seminar in Coastal Issues and Professional Development (1,1,1,1). Must be repeated for a maximum of 4 s.h. Topics include analysis of coastal issues; proposal and dissertation preparation; professional communications; ethics in research.

***CRM 7007.*** Research Design in Marine and Coastal Studies (3) Formerly CRM 6200. Fundamentals of planning, evaluation, and implementation in marine research.

**CRM 7008.** Data Analysis (3). Statistical, quantitative, qualitative, and spatial techniques for coastal research.

**CRM 9000.** Dissertation (1-9)

18 credits required. May be repeated. May count maximum of 24 s.h.

**GRAD 7004.** Research Ethics (2)