

NR 5884 Coastal and Marine Systems

Offered: Summer I (12-weeks)

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REQUIRED TEXT: There is no required text for this class.

COURSE DESCRIPTION:

The coastal zone is a narrow band wrapping around the globe, containing coastal landscapes, estuaries, and marine and lacustrine environments. Stretching from tropic to polar climates, these zones are ecologically rich and dynamic, while being critically important for human activities and economies. Their value comes precisely from the proximity of land to water and water to land. Coastal landscapes are among the most intensively exploited territories in the world. Coastal urbanization is massive and growing—despite the threat of sea level rise. Deltas are intensively farmed, yet vulnerable to natural hazards. Resort development and tourism intensifies and displaces critical habitat and working waterfronts. Offshore from these landscapes are lacustrine, estuarine, and marine spatial areas with valuable resources. Fisheries, minerals, energy, and transportation are dominant marine-based industries. Yet the ecosystem services provided by coastal and marine systems far exceed those exploited for economic gain. Habitats here can be rich, abundant, and biodiverse. Many species are adapted to these specific coastal ecosystems. Barrier islands and reefs can protect shorelines from disturbances. Coastal and marine systems are among the most important, yet inconsistently managed places in the world.

Coastal and Marine Systems examines sustainability and management of these environments as coupled natural and human systems. We will base our investigations on case studies that exemplify the complex scientific, socio-economic, and policy issues manifest in coastal and marine systems. We will develop the theoretical and conceptual knowledge to approach coastal zone management and marine spatial planning as practice-based ecological planning. Because coastal and marine systems contain intensely competing uses in highly dynamic ecosystems, our examination is also an exemplar for a broader set of resource and planning issues.

COURSE REQUIREMENTS AND GRADING:

This course is structured around case study analysis (see below). Both individual and small-group work will be an important part of the investigations. Whole group discussions will be a primary mode of discourse. Grading will be based on forum

discussions, case study research, group presentations, and individual exercises and writing projects.

Case Studies

- Chesapeake Bay
- New Orleans and the Gulf of Mexico
- Bristol Bay, Alaska
- Massachusetts Bay
- New Jersey Barrier Islands
- Bali, Indonesia
- Kerala, India
- The Netherlands
- Sea of Cortez (Gulf of California)

SAMPLE