BIOL-UA.140 Where The City Meets The Sea: Studies in Coastal Urban Environment

Instructor:
Mary Killilea

Course Description:
Over half of the human population lives within 100 km of a coast and coastlines contain more than two-thirds of the world's largest cities. As a result, the world's natural coastal environments have been substantially modified to suit human needs. This course will use the built and natural environments of coastal cities as laboratories to examine the environmental and ecological implications of urban development in coastal areas. Using data from multiple coastal cities, student teams will use field-based studies and Geographic Information System (GIS) data to examine patterns and processes operating in coastal cities. This course uses the local terrestrial, aquatic, and built environments as a laboratory to address these issues, and team projects requiring field work form a core component of the learning experience.

Pre-requisite:
N/A

Textbook and Required Materials:
N/A

Grading:

Assignments	25%
Midterm Exam	20%
Final Project	25%
Final Exam	30%

Topics:
Using GIS to Monitor Development
Water, water everywhere…: Freshwater availability in coastal urban areas
Discussion of Survey our Urban Environment and Project Assignment
Cities at Risk: Climate Change & Coastal Urbanization
Shoring up Cities: Urbanization and Oceanography
The Dead Zone: The ecology of urban effluents
Coastal Cities and Marine Resources Use
Heat Islands: The Climate of Coastal Cities
Air Quality
Simplified Systems: How Human-built Environments Affect Biodiversity

Lab Topics:
Human Demographics-The Challenge of Change
In AD - *Surveying our Urban Environment*:
In NY - Remote Sensing
In NY - *Surveying our Urban Environment*:
In AD - *Remote Sensing*
Making maps for ODK data

Modeling Disasters in Coastal Cities
Measuring Coastal Changes in Shanghai and Abu Dhabi:
Global Eutrophication Patterns
The Sea Harvest: Coastal Overfishing Lab
Urban Heat Island Effects in Abu Dhabi