MSCI / GEOL 215: Coastal Environments of the Southeastern U.S

GEOL 215 - Coastal Environments of the Southeastern U.S. {=MSCI 215} (3) Coastal zones of South Carolina and the Southeastern United States, including geologic history, geomorphology, stratigraphy, hydrogeology, shoreline processes, environmental issues, and effects of man. Three lecture hours each week plus optional field trip(s). Not available for geology major credit.

Catalog Description:
Coastal zones of South Carolina and neighboring states, including geologic history, geomorphology, stratigraphy, hydrogeology, shoreline processes, environmental issues, and effects of man. Not available for geological science or marine science major credit. Three lecture hours each week plus optional field trips.

Objective

Coasts are dynamic systems that change in time scales that can vary from seconds to hundreds and millions of years. This course will examine the "grand-plan" and the physical rules that govern the distribution of coastlines around the globe. Then it will move in looking at shorter time-scales such as sea level rise (thousands of years). Tides and wave controlled processes operate at time scales varying from days to a few seconds. In theory, superimposition of short term processes will lead to the results observed over longer term time-scales. This course will examine the processes themselves as well as the result on the coastal environment (i.e., coastal erosion, movement of barrier islands, shifting of tidal deltas). Hopefully, we will learn how the coastal zone operates and learn to live with it in harmony.

Learning outcome

Students will be able to describe verbally or in writing:

- how costal environments will change with tides, wave controlled processes and hurricanes.
- about the costal environment of the Southeastern U.S.
- the fundamental principles of costal erosion, movement of barrier islands, shifting of tidal deltas
- at least one or two current issues facing the ocean/costal environment.
- the concept of how the costal zone operates and learn to live.
- how wind and wave energy affects the coastal environment.
- how wind movement creates waves and drives the surface circulation of the oceans.
- Apply the principles and language of the natural sciences and associated technologies to historical and contemporary issues.

Carolina Core Outcome:
SCI - Students will be able to apply the principles and language of the natural sciences and associated technologies to historical and contemporary issues.

Credits: 3 Credit hours

Internet: This course is a web-enhanced course with lectures, quizzes, and other course resources posted on-line Blackboard regularly during the semester. Students will be required to access the class Internet site both prior to and following every lecture.

Attendance Policy

Class attendance is **MANDATORY**. The USC Bulletin for Undergraduate Studies states that absences of more than 10% of the scheduled class sessions is excessive. In lieu of taking roll, I will give several **quizzes** at random times during the course at the before/end of lecture or sometimes takes roll randomly. The points earned from the quizzes will be used as extra credit and added to your final grade. Pop quizzes and EXAMS cannot be made up!!!! No exceptions!!!!!

Course Textbook

The primary and most important material is the one available through the instructors Lectures (although they are brief and in order to follow them requires attendance of the lecture). Some of the powerpoint lectures will be available on Blackboard. These lectures were developed following the textbook:

Richard A. Davis Jr., The Evolving Coast , Scientific American Library. However, this is out of print (although some used copies might be found in local bookstores and/or online resellers).

Reference/Suggested:
1. Beaches and Coasts, 2004. Richard A. Davis & Duncan M. Fitzgerald, Blackwell Publishing , 419pp ISBN0-632-04308-3

2. Simon K. Haslett, 2002, Coastal Systems, Routledge. ISBN 0-415-21302-9, 218pp.

Grading

100 points	Test# 1
100 points	Test# 2
100 points	Test# 3
100 points	Final Exam (Optional)
Bonus#1	Assignments/quizzes
Bonus#2	Group presentations (15 min)– 8 students in each group (10 points)
Bonus#3	Attendance to a Marine Science/Geology seminar (5 points) [EOS/Geology Seminars Thursday 3:30-4:30 PM, Marine Science seminars Friday 3-4 PM. There will be a sign-up sheet for the attendance, choose one seminar only]
Bonus#4	Attendance (Absences 0, 1or 2 Points 5, 3 or 2)

All EXAMS will be multiple choice.

NOTE: Final Exam (Optional).

Final Grade is calculated based on the average three tests or the average of the two high scores of the three interim tests and final exam score, and earned bonus points.

Make-up Policies: There will be ***NO*** make-ups for missed quizzes/Tests/seminar or Final Exam.

Final grades will be based on a grading scale suggested as follows: A >= 93; A- = 90-92; B+ = 87-89; B = 83-86; B- = 80-82; C+ = 77-79; C = 73-76; C- = 70-72; D+ = 67-69; D = 63-66; D- = 60-62; and F <= 59. (Decimal points are rounded to the nearest integer)

Tentative Schedule

January 11 Lecture 1 Introduction

January 13	Lecture 2	Costal Environments	
January 18	Lecture 3	Plate Tectonics I	
January 20	Lecture 4	Plate Tectonics II	
January 25	Lecture 5	Coastal classification	
January 27	Lecture 6	Sea Level Rise	
February 1	Lecture 7	Remote Sensing Observations	
February 3	**Test# 1 (Multiple Choice 100 points)**		
February 8	Lecture 8	Physical Processes	Waves I
February 10	Lecture 9	Physical Processes	Waves II
February 15	Lecture 10	Physical Processes	Tides I
February 17	Lecture 11	Physical Processes	Tides II
February 22	Lecture 21	Special/invited Lecture	
February 24	Lecture 22	Special/invited Lecture	
March 1	Lecture 23	Beaches – Material & Morphology	
March 3	**Test#2 (Multiple Choice 100 points)**		
March 6-13	**Spring Break (NO CLASSES)**		
March 15	Lecture 13	Hurricanes I	
March 17	Lecture 14	Hurricanes II	
March 22	Lecture 15	Estuaries I	
March 24	Lecture 16	Estuaries II- Marshes	
March 29	Lecture 17	Barrier Island and Processes	
March 29	Lecture 18	Tidal Inlets	
March 31	Lecture 19	Deltas	
April 5	Lecture 20	Costal Defense Measures	
April 7	Lecture 21	SC Beaches	
April 12	**Test#3 (Multiple Choice 100 points)**		
April 19	Lecture 22	Oceans from Space I	
April 21	Lecture 23	Review and Preparation for the Final Exam	

FINAL EXAM TBA (Optional)