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Fall 2015

EES 6096

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University of New Orleans

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Sea level rise and saline intrusion into coastal habitats

Syllabus for fall semester of 2015
Updated 8/7/2015

Course Instruction

Instructor: Ioannis Georgiou, Associate Professor, Department of Earth and Environmental Sciences
Meeting times: Friday 2 – 5 pm, EES 1046
Office Location: Geology and Psychology Bldg 1046
Contact Information: igeorgio@uno.edu
Office Hours: will be posted on my door shortly, or by appointment

1. Time. The class will be held on Friday 2 - 5 pm Central Time. The early part of the class will be to introduce the topic and readings assigned for that day. The n at 3 pm central, we will tune in for an online lecture for 1 hour. Subsequently, we will have extensive discussion (see requirements for students at the end of the syllabus) and continued in class content for the remaining of the class time.

2. Contacts. The course is being organized by Steven Pennings at the University of Houston. Email spennings@uh.edu, Telephone 713 743 2989. The course is being offered for credit at the University of Houston and at the following additional institutions. Enrolling in these courses may involve additional course work beyond the weekly internet lecture. See the bottom of the syllabus for instructions about logging in and taking the course for credit.

Institution	**Course number and tentative instructors**
Boston University	ES543, September only, Sergio Fagherazzi
Coastal Carolina University	CMSS 787, 1 or 3 credits, Richard Peterson
East Carolina University	BIO 6994, 1 credit, Marcelo Ardon
Florida International University	BSC 6926, 2 credits, Evelyn Gaiser
Indiana University	E579, 1 credit, Christopher Craft
New College Institute	MSCI 698, 0 credits, Matthew Kirwan (via W&M)
Texas A&M	ESSM 681, 1 credit, Anna Armitage
Texas A&M Galveston	MARB 681, 1 credit, Anna Armitage
University of California, Los Angeles	GEOG 277, 3 credits, Kyle Cavanaugh
University of Florida	ENV 6932, 3 credits, Christine Angelini
University of Georgia	MARS 8130, 1 credit, Clark Alexander
University of Houston	BIOL 6297, 3 credits, Steven Pennings
University of Houston Clear Lake	ENSC 4839 or 5939, 3 credits, George Guillen
University of Maryland College Park	MEES 708G, 1 credit, Keryn Gedan
University of New Orleans	EES 6096, 3 credits, Ioannis Georgiou

University of South Carolina	MSCI 599, 1 credit, Alicia Wilson
University of Virginia	EVSC 5559, 1 credit, Linda Blum
Virginia Institute of Marine Sciences	MSCI 698, 1 credit, Matthew Kirwan

3. Course content

Rising sea levels are creating challenges for both natural and human communities. In addition to increased flooding, sea level rise also pushes saline water upstream in estuaries and into coastal groundwater. Natural and human communities respond to these effects in a variety of ways. Understanding the causes, effects, and responses to sea level rise requires an interdisciplinary approach. This course provides a unique opportunity to learn from experts in the field distributed across multiple universities. Speakers will discuss the topic from various perspectives. Course content will be delivered live over the internet.

The course web site is at https://sealevelriseandsalineintrusion.wordpress.com/.

Reading material and lecture videos will be posted before and after lectures.

Schedule of lectures and associated readings

1. Climate change and oceanography basics

August 21	Introduction to Sea Level Rise, basic concepts, Overview of potential saline intrusion in coastal Louisiana.
August 28	Climate change and sea level. Ben Horton, Rutgers University.
September 4	Oceanographic influences on SLR and effects on estuarine salinity regimes. Daniela Di Iorio, University of Georgia.
September 11	Modeling sea level rise in coastal systems. Jonathan Clough, Warren Pinnacle Consulting.

2. Effects of SLR on physical systems

September 18	Coastal geomorphic effects of SLR. Rusty Feagin, Texas A&M University.
September 25	Sea level rise and coastal groundwater flow systems. Alicia Wilson, University of South Carolina.

3. Effect of SLR on biotic systems

October 2	Community responses of biota: herbaceous wetlands. Steven Pennings, University of Houston.
October 9	Testing the Effects of Press versus Pulse Disturbances: SALTex (Seawater Addition Long Term EXperiment). Chris Craft, Indiana University.
October 16	Community responses of biota: forested wetlands. Ken Krauss, USGS.
October 23	Biogeochemical effects of SLR. Tiffany Troxler, Florida International University.
October 30	Title TBA, coastal SEES project, Emily Bernhardt, Duke University

4. Human responses

November 6	Legislation in the US related to SLR. Tracy Hester, University of Houston Law Center.

November 13 Human adaptations to sea level rise. Craig Colten, Louisiana State University.

November 20 Human modifications of the landscape increase vulnerability to SLR. Carol Wilson, Louisiana State University.

December 4 Designing cities for sea level adaptation. Tentatively Marilys Nepomechie, FIU.

Student Learning Outcomes:
After successful completion of this class, students should be able to:

1. Develop a basic understanding of the effects of sea level rise on coastal systems and coastal systems including reservoirs
2. Resulting saline intrusion in response to SRL and how physical and biotic systems might be affected
3. Integrate concepts of SRL and their effects to Human settlements, coastal cities, including human responses to SRL threats presently.

Course evaluation and grading format: Students will be assessed using in-class discussion and participation, reviews, and a final project. All work will reinforce the materials presented in lecture and topics discussed or selected for projects. *Class Project:* The project will require additional resources beyond course documents (ie journal articles for introducing theory, data from online data sources, as well as other data sources). The students will be responsible to present their work to the entire class at the end of the semester (most likely on the scheduled day of the final exam or earlier – see registrar schedule). More details on project will be presented in class and distributed through moodle.

Participation: 40% (each student is required to ask 1 question and bring one relevant discussion point for the assigned reading and lecture for that day)

Abstract submissions and peer review: 20%

Project completion and peer review: 40 % (A paper - guidelines will follow later- on a relevant topic, accompanied by a PowerPoint presentation – more details later) Students will be also required to conduct anonymous (or revealed reviews on other papers)

Grading: Total class grade: equal or above 90% = "A", 80% = "B", 70% = "C", and 60% = "D"

Academic Integrity
Academic integrity is fundamental to the process of learning and evaluating academic performance. Academic dishonesty will not be tolerated. Academic dishonesty includes, but is not limited to, the following: cheating, plagiarism, tampering with academic records and examinations, falsifying identity, and being an accessory to acts of academic dishonesty. Refer to the Student Code of Conduct for further information. The Code is available online at http://www.studentaffairs.uno.edu.

Accommodations
It is University policy to provide, on a flexible and individualized basis, reasonable accommodations to students who have disabilities that may affect their ability to participate in course activities or to meet course requirements. Students with disabilities should contact

the Office of Disability Services as well as their instructors to discuss their individual needs for accommodations. For more information, please go to http://www.ods.uno.edu.

Verification for Online Students

To ensure academic integrity, all students enrolled in distance learning courses at the University of New Orleans may be required to verify their identity when completing exams or other high-stakes assignments. At the discretion of the faculty member teaching the course, verification may include on-campus proctored examinations, off-site or online proctored examinations, or other reasonable measures to ensure student identity. If students cannot attend an on-campus proctored exam, UNO partners with ProctorU, a live, online proctoring service that allows students to complete exams from any location using a computer, webcam, and reliable internet connection. Verification measures for this course are identified below and any fees associated are the responsibility of the student.

Use of Moodle:

Moodle will be used for this course, primarily to post handouts, exercises, programs, solutions to equations, algorithms and other class related material. Students are responsible for checking moodle frequently. Any information posted on moodle is considered an official notification.