

FLORIDA ATLANTIC UNIVERSITY™

Graduate Programs—NEW COURSE PROPOSAL¹

UGPC APPROVAL _____
 UFS APPROVAL _____
 SCNS SUBMITTAL _____
 CONFIRMED _____
 BANNER POSTED _____
 CATALOG _____

DEPARTMENT: BIOLOGICAL SCIENCES

COLLEGE: COLLEGE OF SCIENCE

RECOMMENDED COURSE IDENTIFICATION:

PREFIX OCE COURSE NUMBER 6455 LAB CODE (L or C)

(TO OBTAIN A COURSE NUMBER, CONTACT M.JENNING@FAU.EDU)

COMPLETE COURSE TITLE: Physical and Geological Oceanography

EFFECTIVE DATE

(first term course will be offered)

Fall 2014

CREDITS²: 3

TEXTBOOK INFORMATION: Introduction to Physical Oceanography, John A. Knauss, Waveland Press Inc, 2005 - Science - 309 pages
 Geological Approaches to Coral Reef Ecology, Richard B. Aronson - March 9, 2007, Springer - Publisher
 Hydrodynamics of Coastal Zones, S.R. Massel - April 1, 1989, Elsevier - Publisher

GRADING (SELECT ONLY ONE GRADING OPTION): REGULAR X SATISFACTORY/UNSATISFACTORY

COURSE DESCRIPTION, NO MORE THAN THREE LINES: This course provides an overview of the atmospheric, physical, and geological processes that govern our oceans and coastal margins.

PREREQUISITES*:

COREQUISITES*:

REGISTRATION CONTROLS (MAJOR, COLLEGE, LEVEL)*:
 Permission of the instructor

* PREREQUISITES, COREQUISITES AND REGISTRATION CONTROLS WILL BE ENFORCED FOR ALL COURSE SECTIONS.

MINIMUM QUALIFICATIONS NEEDED TO TEACH THIS COURSE: PH.D. IN THE RELEVANT FIELD

Faculty contact, email and complete phone number:
 Laurent Cherubin and Mingshun Jiang
lcherubin@fau.edu, jiangm@fau.edu
 (772) 2242-2314 (Cherubin), (772) 242-2254 (Jiang)

Please consult and list departments that might be affected by the new course and attach comments.
 Geosciences

Approved by:

Department Chair: [Signature]
 College Curriculum Chair: [Signature]
 College Dean: [Signature]
 UGPC Chair: _____
 Graduate College Dean: _____
 UFS President: _____
 Provost: _____

Date:

1/30/14
2/10/14
2/16/14

1. Syllabus must be attached; see guidelines for requirements:
www.fau.edu/provost/files/course_syllabus.2011.pdf

2. Review Provost Memorandum: **Definition of a Credit Hour**
www.fau.edu/provost/files/Definition_Credit_Hour_Memo_2012.pdf

3. Consent from affected departments (attach if necessary)

Email this form and syllabus to UGPC@fau.edu one week before the University Graduate Programs Committee meeting so that materials may be viewed on the UGPC website prior to the meeting.

FAUnewcrseGrad—Revised September 2013

Course Syllabus for Physical and Geological Oceanograph

1. Course title/number, number of credit hours

Physical and Geological Oceanography – OCE 6455 – 3 credits

2. Course prerequisites

None

3. Course logistics

- a. Term – Fall 2014
- b. N/A
- c. Class location and time (if classroom-based course)
T/R - MC 209

4. Instructor contact information

- a. Instructor's name – Laurent Cherubin and Mingshun Jiang
- b. Office address – HBOI, Lab II, Room 204 & 203
- c. Office hours – To be determined
- d. Contact telephone number – office (772) 2242-2314 (Cherubin), (772) 242-2254 (Jiang), fax (772) 242-2412
- e. E-mail address – lcherubin@fau.edu, jiangm@fau.edu

5. TA contact information (if applicable)

N/A

6. Course description

Core course in ocean dynamics and coastal geology. Focuses on major processes that govern: Water masses; Ocean-atmosphere interactions; General circulation, Ekman circulation, Sverdrup balance and Rossby waves; Gravity waves, tides and coastal circulation; Sea level variations; Tracer input in the coastal seas; Estuarine dynamics; Coupled physical and biogeochemical processes; Coastal systems and the land-sea interface; Coastal processes and geological features; Intra-Americas Seas geological history; Coral reef geology; Human impact on coastal systems; Climate change and coastal systems.

7. Course objectives/student learning outcomes

This course aims to introduce the fundamental processes that govern ocean dynamics and coastal geological features.

Students will be able to understand how the ocean is set in motion and how internal processes driven by the sun, the moon, and the wind define its motions. They will understand how the coastline is shaped by the ocean, climate and humans.

8. Course evaluation method

There will be graded homework assignments accounting for 40% of the student's cumulative performance, a midterm exam, accounting for 30% of the student's cumulative performance, and a final exam that accounts for 30% of the cumulative performance. The overall grade in the course is derived from the cumulative performance according to the following table.

9. Course grading scale (optional)

Cumulative Performance	Grade
>94%	A
>90% - 94%	A-
>87% - 90%	B+
>83% - 87%	B
>80% - 83%	B-
>75% - 80%	C+
>65% - 75%	C
>60% - 65%	C-
>57% - 60%	D+
>53% - 57%	D
>50% - 53%	D-
<50%	F

10. Policy on makeup tests, late work, and incompletes

If a student cannot attend an exam or hand in a homework project on time due to circumstances beyond their control then the instructor may assign appropriate make-up work. Students will not be penalized for absences due to participation in University-approved activities, including athletic or scholastics teams, musical and theatrical performances, and debate activities. These students will be allowed to make up missed work without any reduction in the student's final course grade. Reasonable accommodation will also be made for students participating in a religious observance. Also, note that grades of Incomplete ("I") are reserved for students who are passing a course but have not completed all the required work because of exceptional circumstances. A grade of "I" will only be given under certain conditions and in accordance with the academic policies and regulations put forward in FAU's University Catalog. The student must show exceptional circumstances why requirements cannot be met. A request for an incomplete grade has to be made in writing with supporting documentation, where appropriate.

11. Special course requirements (if applicable)

N/A

12. Classroom etiquette policy (if applicable)

University policy on the use of electronic devices states: “In order to enhance and maintain a productive atmosphere for education, personal communication devices, such as cellular telephones and pagers, are to be disabled in class sessions.”

13. Disability policy statement

In compliance with the Americans with Disabilities Act (ADA), students who require special accommodation due to a disability to properly execute coursework must register with the Office for Students with Disabilities (OSD) -- in Boca Raton, SU 133 (561-297-3880); in Davie, MOD 1 (954-236-1222); in Jupiter, SR 117 (561-799-8585); or at the Treasure Coast, CO 128 (772-873-3305) – and follow all OSD procedures.

14. Honor Code policy statement

Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty, including cheating and plagiarism, is considered a serious breach of these ethical standards, because it interferes with the University mission to provide a high quality education in which no student enjoys an unfair advantage over any other. Academic dishonesty is also destructive of the University community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. For more information, see University Regulation 4.001 at http://www.fau.edu/regulations/chapter4/Reg_4.001_5-26-10_FINAL.pdf

15. Required texts/readings

Introduction to Physical Oceanography
John A. Knauss
Waveland Press Inc, 2005 - Science - 309 pages

Geological Approaches to Coral Reef Ecology
Richard B. Aronson - March 9, 2007
Springer – Publisher

Hydrodynamics of Coastal Zones
S.R. Massel - April 1, 1989
Elsevier – Publisher

16. Supplementary/recommended readings (optional)

Descriptive Physical Oceanography: An Introduction, Edition 6
Lynne D. Talley George L. Pickard William J. Emery James H. Swift - April 11, 2011
Academic Press – Publisher

17. Course topical outline

1. **Introduction: importance of geophysical fluid dynamics**
Homework assignment: evaluate horizontal and vertical extent of main oceanic features
2. **Water characteristics and physical properties of seawater**
Homework assignment: group projects on water masses in the Caribbean
3. **Atmospheric general circulation buoyancy fluxes and wind forcing**
Homework assignment: group projects on ocean heat fluxes
4. **Ocean general circulation and dynamical processes**
Homework assignment: group projects on ocean processes in our coastal seas
5. **Gravity waves, tides and coastal oceanography**
Homework assignment: group projects on the analysis of tidal time-series and other type of coastal waves
6. **Currents in coastal zones**
Homework assignment: group project on rip currents on our beaches
7. **Sea level variations**
Homework assignment: group project on tsunamis in the Caribbean
8. **Tracer input in the coastal seas**
Homework assignment: group project on tracer input in the Indian River Lagoon
9. **Estuarine dynamics**
Homework assignment: group project on water management in Everglades National Park
10. **Coupled physical and bio-geochemical processes**
Homework assignment: group project on ocean acidification
11. **Overview of coastal systems and the significance of the land–ocean interface**
Homework assignment: group project on Florida shoreline
12. **Coastal processes and features**
Homework assignment: group project on Intra-Americas Seas coastal features

13. Intra-America Seas geological history

Homework assignment: group project on Intra-America Seas major geological events

14. Coral reef geology

Homework assignment: group project on coral reef diversity relative to geological structure

15. Coastal systems and human impacts

Homework assignment: group project on coastal development and shoreline erosion in Florida

16. Climate change and coastal systems

Homework assignment: group project on hurricanes and geological landscape shifts