

# FLORIDA ATLANTIC UNIVERSITY™

## Graduate Programs—NEW COURSE PROPOSAL<sup>1</sup>

UGPC APPROVAL \_\_\_\_\_  
 UFS APPROVAL \_\_\_\_\_  
 SCNS SUBMITTAL \_\_\_\_\_  
 CONFIRMED \_\_\_\_\_  
 BANNER POSTED \_\_\_\_\_  
 CATALOG \_\_\_\_\_

DEPARTMENT: GEOSCIENCES

COLLEGE: CESCOS

**RECOMMENDED COURSE IDENTIFICATION:**

PREFIX OCE COURSE NUMBER 6680 LAB CODE (L or C) \_\_\_\_\_

(TO OBTAIN A COURSE NUMBER, CONTACT [NMALDONADO@FAU.EDU](mailto:NMALDONADO@FAU.EDU))

COMPLETE COURSE TITLE: OCEAN MONITORING SYSTEMS

**EFFECTIVE DATE**

(first term course will be offered)

Fall 2015

CREDITS<sup>2</sup>: 3

TEXTBOOK INFORMATION: NONE

GRADING (SELECT ONLY ONE GRADING OPTION): REGULAR XXX SATISFACTORY/UNSATISFACTORY \_\_\_\_\_

COURSE DESCRIPTION, NO MORE THAN THREE LINES: INTERNATIONAL AGREEMENTS AND CONVENTIONS CALL FOR SAFETY AT SEA, EFFECTIVE MANAGEMENT OF THE MARINE ENVIRONMENT, AND SUSTAINABLE UTILIZATION OF ITS RESOURCES. THIS COURSE PROVIDES THE INTERNATIONAL FRAMEWORK, CONCEPTS AND TOOLS USED TO MEASURE, RAPIDLY DETECT AND PROVIDE TIMELY PREDICTIONS OF CHANGES IN A BROAD SPECTRUM OF MARINE PHENOMENA.

**PREREQUISITES\*:**

MSC-I AND OCE 6500

OR

PERMISSION OF THE INSTRUCTOR

**COREQUISITES\*:**

**REGISTRATION CONTROLS (MAJOR, COLLEGE, LEVEL)\*:**

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

**MINIMUM QUALIFICATIONS NEEDED TO TEACH THIS COURSE:**

MEMBER OF THE GRADUATE FACULTY OF FAU AND HAS A TERMINAL DEGREE IN THE SUBJECT AREA (OR A CLOSELY RELATED FIELD)

Faculty contact, email and complete phone number:

Laurent Cherubin, [lcherubin@fau.edu](mailto:lcherubin@fau.edu)  
 772-242-2314

Please consult and list departments that might be affected by the new course and attach comments.<sup>3</sup>  
 See Memo from Ocean Engineering

**Approved by:**

Department Chair: [Signature]

College Curriculum Chair: [Signature]

College Dean: [Signature]

UGPC Chair: [Signature]

Graduate College Dean: [Signature]

UFS President: \_\_\_\_\_

Provost: \_\_\_\_\_

**Date:**

2/5/15

2/5/15

2/5/15

2/18/15

2/26/15

1. Syllabus must be attached; see guidelines for requirements: [www.fau.edu/provost/files/course\\_syllabus.2011.pdf](http://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](http://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](mailto: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.

## Course Syllabus for Ocean Monitoring Systems

### 1. Course title/number, number of credit hours

*Ocean monitoring Systems and Implementation Strategies*  
OCE 6680 – 3 credit hours

### 2. Course prerequisites

- a. MSC-I and OCE 6500
- or
- b. Permission of the instructor

### 3. Course logistics

- a. Term – Spring 2015
- b. Notation if online course – N/A
- c. Class location and time (if classroom-based course)  
W/F – MC 209

### 4. Instructor contact information

- a. Instructor's name – Laurent Cherubin, Anni Dalglish, Fraser Dalglish
- b. Office address – HBOI, Lab II, Room 204; Ed Link Bldg, Room 131-141
- c. Office hours – To be determined
- d. Contact telephone number – office (772) 2242-2314 (Cherubin), 772 2422477 (A. Dalglish), 772 2422591 (F. Dalglish)
- e. E-mail address – lcherubin@fau.edu; adalglish@fau.edu; fdalglish@fau.edu

### 5. TA contact information (if applicable)

N/A

### 6. Course description

International agreements and conventions call for safety at sea, effective management of the marine environment, and sustainable utilization of its resources. This course provides the international framework, concepts and tools used to measure, rapidly detect and provide timely predictions of changes in a broad spectrum of marine phenomena that affect (1) the safety and efficiency of marine operations; (2) the susceptibility of human populations to natural hazards; (3) the response of coastal ecosystems to global climate change; (4) public health and well being; (5) the state of marine ecosystems; (6) the sustainability of living marine resources; (7) and ocean renewable energy.

### 7. Course objectives/student learning outcomes

In the context of rapid increases in human uses of coastal resources and global changes in the ocean-climate system, which make the coastal zone more susceptible to natural hazards, more costly to live in, and of less value to national

economies, this course intends to **provide students with an overview and hands on training in ocean monitoring systems and their implementation strategies. This is done within the conceptual design proposed by the Intergovernmental Oceanographic Commission (IOC)**

Students will be able to conceive an observation system in order to address a specific concern regarding ocean ecosystems issues, within the framework of IOOS and other international frameworks.

**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)**

Lab with instruments hand-on course and ocean survey

**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](http://www.fau.edu/regulations/chapter4/Reg_4.001_5-26-10_FINAL.pdf)

**15. Required texts/readings**

An Implementation Strategy for the Coastal Module of the Global Ocean Observing System GOOS Report 148  
IOC Information Document Series 1217  
Paris: UNESCO, Intergovernmental Oceanographic Commission, 2005

The Integrated Strategic Design Plan for the Coastal Ocean Observations Module of the Global Ocean Observing System  
GOOS Report 125  
IOC Information Document Series 1183  
Paris: UNESCO, Intergovernmental Oceanographic Commission, 2005

**16. Supplementary/recommended readings (optional)**

## 17. Course topical outline

- 1. Introduction: purpose and scope**  
Homework assignment: evaluate the usefulness of such system for societal benefits
- 2. Large scale external forcing**  
Homework assignment: survey of external forcing on a local ecosystem
- 3. Ecosystem dynamics**  
Homework assignment: evaluate the link between the biological, chemical geological and physical processes in a local ecosystem
- 4. Ecosystem based approach**  
Homework assignment: what should we measure to best mitigate coral reef loss in Florida
- 5. Research base**  
Homework assignment: rationale of a research project that uses data from measurements from previous topic
- 6. Global coastal network**  
Homework assignment: design a plan for the coastal module that respects regional differences
- 7. Multi-purpose observing system**  
Homework assignment: harmful algal bloom: extent, time scale and type of measurements to assess its occurrence
- 8. Elements of an end to end observing system**  
Homework assignment: missing pieces in the Horizon oil spill monitoring system
- 9. The initial subsystem for coastal observations**  
Homework assignment: what should be the common variables
- 10. Measurements at sea: instruments and methods**  
Homework assignment: instrument calibration
- 11. Instrument orientation**  
Homework assignment: plan your own survey

**12. Instrument software orientation**

Homework assignment: analysis of survey's data

**13. Data quality control, management**

Homework assignment: error quantification of survey measurements

**14. Data storage, distribution protocols and formats**

Homework assignment: apply different metadata and formats to the same data

**15. Combining observation and model**

Homework assignment: which model for specific applications

**16. Ocean forecast and data assimilation**

Homework assignment: conceptual design of a forecast system

## Charles Roberts

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**From:** Javad Hashemi  
**Sent:** Monday, September 22, 2014 10:39 AM  
**To:** Charles Roberts  
**Cc:** Tsung-Chow Su  
**Subject:** RE: Email of support for Harbor Branch Courses

Dear Charles, thank you for attending a meeting with the OE faculty regarding various issues that you highlighted in your email below. I would like to provide a synopsis for our discussions as follows:

- 1- The OME department is very supportive of the Marine Science Degree plan. We believe that the degree plan will be very successful and this will be great for FAU and all of us. We are however concerned that it could influence some of the engineering students to switch fields in the middle of their Masters of Ocean Engineering studies to pursue the newly formed, more descriptive, Marine Science Degree. You suggested that, to allay the faculty's concerns, you will add language to your degree plan guidelines requiring students that engage in such a transfer "to start their degree plan in the Marine Science Degree anew" (no credits will be transferred from their OE plan). This suggestion works for OME.
- 2- Regarding the courses that you wish to add (see table below), the OME graduate committee has reviewed them and has concluded that there are no overlaps. Therefore, we feel that the OE program can give its blessing for your program to offer these courses. We do request, however, that these courses be offered out of the Geosciences Department instead of OME. The graduate committee felt that these courses are of the applied nature for the end-user. There is minimal technology development content and therefore not uniquely suitable for engineering. We do believe that these courses are valuable and engineering students should be able to take them as graduate electives, perhaps joint listing will be an option.

OCE 6269	Marine Optics	Dalgl
OCE 6267	Underwater Optical Imaging for Marine Scientists	Dalgl
EVS 5385	Image and Video Processing and Vision in Marine Environment	Ouya
OCE 6680	Ocean Monitoring Systems and Implementation Strategies	Cher

- 3- Regarding affiliated faculty status for HBOI researchers, we are very open to this suggestion and encourage it however we feel that the affiliated faculty designation should be possible in both directions; HBOI scientists may be affiliated with the OME program and OME engineering scientists may be affiliated with HBOI. We should jointly (with HBOI) define the concept of "affiliated faculty" to avoid any potential future disagreements regarding voting rights, tenure privileges, financial responsibilities, student advising and support, proposal writing and budgeting issues. I realize that this may sound a little excessive but we feel it necessary, for clarity purposes, nevertheless. The OME program faculty would like to postpone the offering of such designations to HBOI scientists until we have discussed the matter for a mutually agreeable definition and process.

Please contact me if you have any questions or comments about the above summary.

Thank you and regards,

Javad Hashemi

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**From:** Charles Roberts  
**Sent:** Thursday, August 21, 2014 9:51 AM