# Graduate Programs—NEW COURSE PROPOSAL

**FLORIDA ATLANTIC UNIVERSITY**

**DEPARTMENT:** GEOSCIENCES  
**COLLEGE:** CESCOS

**RECOMMENDED COURSE IDENTIFICATION:**

<table>
<thead>
<tr>
<th>PREFIX</th>
<th>OCE</th>
<th>COURSE NUMBER</th>
<th>6680</th>
<th>LAB CODE (L or C)</th>
<th>EFFECTIVE DATE</th>
</tr>
</thead>
<tbody>
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<td>(first term course will be offered)</td>
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(To obtain a course number, contact NMALDONADO@FAU.EDU)

**COMPLETE COURSE TITLE:** OCEAN MONITORING SYSTEMS

**CREDITS:** 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  
772-242-2314

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

**Approved by:**

- Department Chair:  
- College Curriculum Chair:  
- College Dean:  
- UGPC Chair:  
- Graduate College Dean:  
- UFS President:  
- Provost:

**Date:**  
21/5/15  
21/5/15  
21/5/15  
21/5/15  
21/6/15

1. Syllabus must be attached; see guidelines for requirements:  

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.

FAUnewcourseGrad—Revised November 2014
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 Dalgleish, Fraser Dalgleish
   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. Dalgleish), 772 2422591 (F. Dalgleish)
   e. E-mail address – lcherubin@fau.edu; adalgleish@fau.edu;
      fdalgleish@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)**

<table>
<thead>
<tr>
<th>Cumulative Performance</th>
<th>Grade</th>
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<tbody>
<tr>
<td>&gt;94%</td>
<td>A</td>
</tr>
<tr>
<td>&gt;90% - 94%</td>
<td>A-</td>
</tr>
<tr>
<td>&gt;87% - 90%</td>
<td>B+</td>
</tr>
<tr>
<td>&gt;83% - 87%</td>
<td>B</td>
</tr>
<tr>
<td>&gt;80% - 83%</td>
<td>B-</td>
</tr>
<tr>
<td>&gt;75% - 80%</td>
<td>C+</td>
</tr>
<tr>
<td>&gt;65% - 75%</td>
<td>C</td>
</tr>
<tr>
<td>&gt;60% - 65%</td>
<td>C-</td>
</tr>
<tr>
<td>&gt;57% - 60%</td>
<td>D+</td>
</tr>
<tr>
<td>&gt;53% - 57%</td>
<td>D</td>
</tr>
<tr>
<td>&gt;50% - 53%</td>
<td>D-</td>
</tr>
<tr>
<td>&lt;50%</td>
<td>F</td>
</tr>
</tbody>
</table>

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

15. Required texts/ readings
   IOC Information Document Series 1217

   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

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: rational 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 it 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
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.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
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</thead>
<tbody>
<tr>
<td>OCE 6269</td>
<td>Marine Optics</td>
<td>Daigl</td>
</tr>
<tr>
<td>OCE 6267</td>
<td>Underwater Optical Imaging for Marine Scientists</td>
<td>Daigl</td>
</tr>
<tr>
<td>EVS 5385</td>
<td>Image and Video Processing and Vision in Marine Environment</td>
<td>Ouyang</td>
</tr>
<tr>
<td>OCE 6680</td>
<td>Ocean Monitoring Systems and Implementation Strategies</td>
<td>Cher</td>
</tr>
</tbody>
</table>

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