FLORIDA ATLANTIC UNIVERSITY

NEW COURSE PROPOSAL
Graduate Programs

Department Biological Sciences

College College of Science

*(To obtain a course number, contact **erudolph@fau.edu**)*

UGPC Approval _____
UFS Approval _____
SCNS Submittal _____
Confirmed _____
Banner Posted _____
Catalog _____

Prefix OCE **Number** 6350	*(L = Lab Course; C = Combined Lecture/Lab; add if appropriate)* **Lab Code**	**Course Title** Dynamics of Marine Biogeochemical Processes
Credits *(Review Provost Memorandum)* 3	**Grading** *(Select One Option)* **Regular** ◉ **Sat/UnSat** ○	**Course Description** *(Syllabus must be attached; see Guidelines)* An overview of dynamic interactions between physical and biogeochemical processes in coastal and open oceans. The course focuses on nutrient and carbon fluxes, and the role of physical dynamics in marine biogeochemical cycle, productivity, and plankton dynamics in coastal and shelf seas.
Effective Date *(TERM & YEAR)* FALL 2017 ~~Spring 2018~~		

Prerequisites	Corequisites	Registration Controls *(Major, College, Level)*
MS I & MS II or Permission of the instructor		

Prerequisites, Corequisites and Registration Controls are enforced for all sections of course

Minimum qualifications needed to teach course: Member of the FAU graduate faculty and has a terminal degree in the subject area (or a closely related field.)	**List textbook information in syllabus or here** K. Mann and J. Lazier, 2005, Dynamics of Marine Ecosystems: Biological-Physical Interactions in the Oceans, Blackwell Publishing, 3rd edition. - Additional reading: I. Valiela, 1995, Marin
Faculty Contact/Email/Phone Mingshun Jiang and Lauren,t Cherubin jiangm@fau.edu, lcherubin@fau.edu (772)242-2254	**List/Attach comments from departments affected by new course**

Approved by	***Date***
Department Chair _____	12-6-16
College Curriculum Chair _____	Dec 5/16
College Dean _____ Dr. Charles Roberts	Dec 5, 2016
UGPC Chair _____	
Graduate College Dean _____	
UFS President _____	
Provost _____	

Email this form and syllabus to UGPC@fau.edu one week before the UGPC meeting.

Course Syllabi for Dynamics of Marine Biogeochemical Processes

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

   Dynamics of Marine Biogeochemical Processes - OCE 6350 - 3 credits

2. **Course prerequisites**
   a. MS I & MS II

   or

   b. Permission of the instructor

3. **Course logistics**
   a. Term – Fall 2017
   b. Notation if online course – N/A
   c. Class location and time (if classroom-based course) – To be determined

4. **Instructor contact information**
   a. Instructor's name – Mingshun Jiang and Laurent Cherubin
   b. Office address – HBOI, Lab II, room 205 & 206
   c. Office hours – To be determined
   d. Contact telephone number – office (772) 242-2254 (Jiang), (772) 242-2314 (Cherubin) fax (561) 297-2436
   e. E-mail address – jiangm@fau.edu, lcherubin@fau.edu

5. **TA contact information (if applicable)**
   N/A

6. **Course description**
   An overview of dynamic interactions between physical and biogeochemical processes in coastal and open oceans. The emphasis is placed on nutrient and carbon flow, and the role of physical dynamics in marine biogeochemical cycle, productivity, and plankton dynamics within the pelagic zones.

7. **Course objectives/student learning outcomes**
   This course aims to introduce fundamental coupled physical-biogeochemical processes that govern the marine biogeochemical cycles and ecosystem functions through nutrient limitation, food-web interactions, and transport and dispersion.

   Students will be able to understand how physical processes such as coastal currents, river discharges, meso-scale eddies, upwelling, and vertical mixing affect marine nutrient and carbon cycle, primary productivity, phytoplankton blooms, and food-web interactions

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 Student Accessibility Services (SAS) [formerly 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 SAS procedures. The SAS site is http://www.fau.edu/sas/

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/chapter4/4.001 Honor_Code.pdf.

15. Required texts/readings

K. Mann and J. Lazier, 2005, Dynamics of Marine Ecosystems: Biological-Physical Interactions in the Oceans, Blackwell Publishing, 3rd edition.
Additional reading: *I. Valiela, 1995, Marine Ecological Processes, Springer, 2nd edition.*

16. Supplementary/recommended readings (optional)

N/A

17. Course topical outline

1) Eutrophication I: river transport and dispersion
2) Eutrophication II: groundwater and sediment input (Homework #1)
3) Ocean acidifcation: coastal carbon cycle (Homework #2)
4) Vertical mixing and phytoplankton bloom
5) Horizontal mixing and plankton patchiness (Homework #3)

6) Frontal processes and biological responses
7) Meso-scale eddies and phytoplankton bloom
(Homework #4)
8) Coastal upwelling I: phytoplankton bloom
(mid-term exam)
9) Coastal upwelling II: ocean acidification
(Homework #5)
10) Phytoplankton bloom, coastal transport and hypoxia
11) Lagrangian transport and zooplankton aggregations
(Homework #6)
12) Seasonality of marine ecosystems
(Homework #7)
13) Interannual variability and long-term changes of marine ecosystems
(Homework #8)
14) Iron and carbon cycle I: dust deposition and upwelling
15) Iron and carbon cycle II: shelf sediment
(Homework #9)
16) Climate change and global carbon cycle
(Homework #10 & Final Exam)

Helen Randall

From: Peter McCarthy
Sent: Tuesday, November 01, 2016 8:18 AM
To: Megan Davis; Sarah Milton; Helen Randall
Subject: FW: Email of support for Harbor Branch Courses

Here is the letter (e-mail) of support from Engineering. Charles sent it to Sarah and me on October 12th.

Peter

From: Charles Roberts
Sent: Wednesday, October 12, 2016 9:02 AM
To: Sarah Milton <smilton@fau.edu>; Peter McCarthy <PMCCART5@fau.edu>
Subject: Re: Email of support for Harbor Branch Courses

Here is the support letter from Engineering. All the conditions listed have been met.

Charles

From: Javad Hashemi
Sent: Monday, September 22, 2014 10:39:07 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	Dalgleish, Anni
OCE 6267	Underwater Optical Imaging for Marine Scientists	Dalgleish, Fraser
EVS 5385	Image and Video Processing and Vision in Marine Environment	Ouyang
OCE 6680	Ocean Monitoring Systems and Implementation Strategies	Cherubin, Dalgleish, Dalgleish

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

From: Charles Roberts
Sent: Thursday, August 21, 2014 9:51 AM
To: Javad Hashemi; Ali Zilouchian
Subject: Email of support for Harbor Branch Courses

Good Morning,

Last spring we spoke about these three course proposals from the engineers at HBOI:

OCE 6267 Underwater Optical Engineering

OCE 6269 Marine Optics

OCE 6680 Ocean Monitoring

At the time you indicated that you would support the courses, but wanted them to adjust the website, which I believe they have done. You had reservations about the Marine Science Degree, which we will work on this fall, and I will ask for your comments and concerns and eventually support as we develop the program. I would however, like to take the three courses we discussed through the curriculum process now, so I am asking for an email indicating your support.

Dr. Charles Roberts
Interim Chair, Department of Geosciences and
Associate Dean of Graduate Studies
Charles E Schmidt College of Science
Florida Atlantic University