

# FLORIDA ATLANTIC UNIVERSITY™

## Undergraduate Programs—COURSE CHANGE REQUEST<sup>1</sup>

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

<b>DEPARTMENT: BIOLOGICAL SCIENCE</b>	<b>COLLEGE: COLLEGE OF SCIENCE</b>
<b>COURSE PREFIX AND NUMBER: BOT 4404</b>	<b>CURRENT COURSE TITLE: MARINE BOTANY</b>
<b>CHANGE(S) ARE TO BE EFFECTIVE (LIST TERM): FALL 2013</b>	<b>_____ TERMINATE COURSE (LIST FINAL ACTIVE TERM):</b>

<p><b>CHANGE TITLE TO:</b></p> <p><b>CHANGE PREFIX FROM: TO:</b></p> <p><b>CHANGE COURSE NO. FROM: TO:</b></p> <p><b>CHANGE CREDITS<sup>2</sup> FROM: TO:</b></p> <p><b>CHANGE GRADING FROM: TO:</b></p> <p><b>CHANGE WAC/GORDON RULE STATUS<sup>3</sup></b>                  ADD* _____ REMOVE _____</p> <p><b>CHANGE GENERAL EDUCATION REQUIREMENTS<sup>4</sup></b>                  ADD* _____ REMOVE _____</p> <p><small>*WAC and General Education criteria must be clearly indicated in attached syllabus. For WAC Guidelines: <a href="http://www.fau.edu/WAC">www.fau.edu/WAC</a>. Please attach General Education Course Approval Request: <a href="http://www.fau.edu/deanugstudies/GeneralEdCourseApprovalRequests.php">www.fau.edu/deanugstudies/GeneralEdCourseApprovalRequests.php</a></small></p>	<p><b>CHANGE DESCRIPTION TO:</b></p> <p><b>CHANGE PREREQUISITES/MINIMUM GRADES TO*:</b></p> <p><u>EXISTING</u>                  BSC 1010, BSC 1010L, BSC 1011, BSC 1011L</p> <p><u>NEW PRE/REQ.</u>                  BSC 1010, BSC 1010L, BSC 1011, BSC 1011L                  CHM 2045, CHM 2045L, CHM 2046, CHM 2046L, PCB 4043                  MINIMUM PASSING GRADE C-</p> <p><b>CHANGE COREQUISITES TO*:</b></p> <p><b>CHANGE REGISTRATION CONTROLS TO:</b></p> <p><small>*Please list existing and new pre/corequisites, specify AND or OR and include minimum passing grade (default is D-).</small></p>
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Attach syllabus for ANY changes to current course information.

Should the requested change(s) cause this course to overlap any other FAU courses, please list them here.	Please consult and list departments that might be affected by the change(s) and attach comments. <sup>5</sup>
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Faculty contact, email and complete phone number:  
 David Binninger; binninge@fau.edu; 561.297-3323

<p><b>Approved by:</b></p> <p>Department Chair: <u><i>David Binninger</i></u></p> <p>College Curriculum Chair: <u><i>J. L. King</i></u></p> <p>College Dean: <u><i>John G. ...</i></u></p> <p>UUPC Chair: <u><i>J. I. ...</i></u></p> <p>Undergraduate Studies Dean: <u><i>Emil ...</i></u></p> <p>UFS President: _____</p> <p>Provost: _____</p>	<p><b>Date:</b></p> <p>Feb. 27, 2013</p> <p><u>3/21/13</u></p> <p><u>3/20/13</u></p> <p><u>3/22/13</u></p> <p><u>3/27/13</u></p>	<p><b>1. Syllabus must be attached; syllabus checklist recommended; see guidelines and checklist:</b>  <a href="http://www.fau.edu/academic/registrar/UUPCinfo">www.fau.edu/academic/registrar/UUPCinfo</a></p> <p><b>2. Review Provost Memorandum: Definition of a Credit Hour</b>  <a href="http://www.fau.edu/provost/files/Definition_Credit_Hour_Memo_2012.pdf">www.fau.edu/provost/files/Definition_Credit_Hour_Memo_2012.pdf</a></p> <p><b>3. WAC approval (attach if necessary)</b></p> <p><b>4. Gen. Ed. approval (attach if necessary)</b></p> <p><b>5. Consent from affected departments (attach if necessary)</b></p>
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Email this form and syllabus to [mienninq@fau.edu](mailto:mienninq@fau.edu) seven business days before the University Undergraduate Programs Committee meeting so that materials may be viewed on the UUPC website prior to the meeting.

# Welcome to Marine Botany 4404!!

**Dr. Koch (pronounced Cook)**

**Office Hours: M and W 8:00 am to 2:30 pm or Any Time with Appoint-Best to see me before/after class SC 267**

- Sign in form-any freshman or students who have not had Bio I and II, Ecology, and Chem 1 and 2 should see me.
- General Philosophy-Ecological Approach
  - Goal class is not to teach you from a taxonomic perspective-this is not a plant taxonomy class-although we will learn about dominant groups of plants and microorganisms that drive ecosystem processes in the oceans.
  - Goal is to gain a comprehensive understanding of the role of marine plants and primary producers that support marine food webs in the coastal zones and oceans, at the unicellular level this can include marine viruses and bacteria.
  - Goal is to understand marine ecosystem processes-some of these global processes are governed by large-scale oceanographic phenomenon and in turn some of the biota controls these biogeochemical processes that influence the large-scale oceanographic phenomenon.
  - For example, ocean currents drive primary productivity patterns of global oceans-in this case the physical and chemical processes control the biota.
  - On the other hand, biota that secrete calcium carbonate and silica, control ocean sediments and chemistry in some locations. Helpful have a background in Biology/Chemistry - idea here is can we put some of the disciplines together to understand “real world” processes of the marine environment.
  - My goal is also for you to understand how scientists investigate some of these processes-thus, we will also give some time to discussing how things are measured- new technologies and large-scale ocean monitoring-although more detailed in lab; and to develop scientific writing skills effective scientific communicator-we will come back to that later and next Wednesday.
  - My goal in this class is to also make you aware of the enormous rapid changes that are occurring in the oceans because regardless of what field of study or business you ultimately are in-you are the future steward of our oceans-they have been relatively stable over the last millennium, but are currently changing very rapidly.
- Syllabus
- Blackboard (powerpoint, readings, etc.)
  - At this time not requiring you get “Marine Botany” book by Dawes-if you can pick it up, nice reference book, at least until I write a new one.
  - Also be putting some books on reserve in library-basic oceanography book and Marine Botany.
  - Also be putting up required readings from the primary literature that you will be responsible for on the exams.
  - Also put up internet links of interest for further reading-information-and any links that I use in class as part of my lectures.
  - All exams are open notes-
- Research Paper
- Lab-Starts Aug 22<sup>th</sup> Wednesday
- My expectations lecture-come to class, participate, take readings and reports seriously, study for exams-think! Questions?

**Marine Botany Lecture**  
**BOT 4404-001 #80241 (2 credits)**  
**Syllabus Fall 2013**

**Meeting Dates and Times:** Monday and Wednesday 11:00-11:50 in GCS Room 111

**Lecturer:** Dr. Marguerite Koch ([mkoch@fau.edu](mailto:mkoch@fau.edu)) SC 267

**TAs:** Kate Peach and Theresa Strazisar

**TA Office Location and Contact:**

Theresa Strazisar SC251 [tstraz@gmail.com](mailto:tstraz@gmail.com)

Kate Peach SC 251 [kpeach1@fau.edu](mailto:kpeach1@fau.edu)

**Course Description:** An introduction to marine plants in the pelagic open-ocean and coastal environments. The course focuses on systematics, life history strategies, and the ecology of both phytoplankton and benthic marine plant communities

**Prerequisites:** BSC 1010, BSC 1010L, BSC 1011, BSC 1011L, CHM 2045, CHM 2045L, CHM 2046, CHM 2046L, PCB 4043 Min. Passing Grade of C-

Co-requisite: BSC 4404L

**Honor Code:** Students agree to adhere to the honor code, the text of which is a [http://www.fau.edu/ctl/4.001\\_Code\\_of\\_Academic\\_Integrity.pdf](http://www.fau.edu/ctl/4.001_Code_of_Academic_Integrity.pdf)

**I) Microalgal Ecology/Systematics**

August 20	Introduction
August 22	Physical Aspects of the Ocean Environment
August 27	Physical Aspects of the Ocean Environment (cont.)
<u>August 29</u>	Scientific Writing and Researching Library Databases ( <b>Read Physical Ocean Papers over weekend-write 2 page summary double spaced 12 font-4-6 paragraphs</b> )
<b>September 3</b>	<b>NO CLASS- Veterans Day</b>
<u>September 5</u>	Chemical Characteristics of Seawater (cont.) ( <b>Read Chemical Ocean Papers over weekend- write 2 page summary double spaced 12 font-4-6 paragraphs</b> ) ( <b>Working Title Term Paper Due</b> )
<b>September 10</b>	<b>Chemical/Physical In Class Discussion of Papers (Turn in summaries-Phys and Chem – 2 pgs @)</b>
September 12	Microalgal Characterizations and Evolution
September 17	Important Algae of the Phytoplankton (Cyano, Diatom, Dinos, Haptos)
September 19	Important Algae of the Phytoplankton (Cyano, Diatom, Dinos, Haptos)
<b>September 24</b>	Phytoplankton Primary Productivity ( <b>Turn in reference list 20</b> )
<u>September 26</u>	Phytoplankton Primary Productivity ( <b>Read Biol Ocean Papers over weekend-write 2 page summary double spaced 12 font-4-6 paragraphs</b> )
October 1	Zooplankton Grazing -Finish lectures & Review)
<b>October 3</b>	<b>Phytoplankton In Class Discussion of Papers (Turn in summaries-Biol)</b>
October 8	Climate Change and Ocean Acidification Effects on Phytoplankton
<b>October 10</b>	<b>Midterm Exam</b>

**II) Macroalgal (Seaweed) & Marine Vascular Plant Ecology/Systematics**

October 15	Microalgae and Macroalgae Economical Importance (Foods, Chemicals, Biofuels)
October 17	Macroalgae Introduction: Form, Growth and Reproduction
October 22	Macroalgae Life history, Establishment, Morphogenesis and Growth
October 24	Mangrove and Communities
<b>October 29</b>	Seagrass Communities ( <b>Paper Detailed Outline Due</b> )
<u>October 31</u>	Salt marsh Communities ( <b>Read Reef Papers over weekend- write 2 page summary double spaced 12 font-4-6 paragraphs</b> )

November 5	Ecological Effects/Algae on Coral Reefs -Coral Phase Shifts and Herbivory
<b>November 7</b>	<b>Discussion In Class Bleaching, Acidification and Phase shift Papers (Turn in summary – Reef and Acidification papers)</b>
<b>November 12</b>	<b>NO CLASS- Veterans Day</b>
November 14	Algal Pigments and the Light Environment
November 19	Intertidal Communities (Zonation of Algae)
November 21	Ocean pollution
<b>November 26</b>	<b>Global Climate Change (Turn in Term Paper- letter a day grade drop if late)</b>
<b>November 28</b>	<b>Final Exam II (Not cumulative)</b>
<b>December 5 (W)</b>	(Final Exam Meeting (10:30 am – 1:00 pm) Paper Presentations (2 min each student)

**Required Readings:** (1) Primary Literature Papers to be uploaded on blackboard; (2) A Pocket Style Manual with 2009 MLA and 2010 APA Updates (By Diana Hacker, Nancy Sommers, Tom Jehn - Bedford/St. Martin's (2010) ISBN 031266480X) and (3) Writing papers in the biological sciences By Victoria E. McMillan, Vicky McMillan, Robert Arnold, Deborah Huerta - Bedford/St. Martin's (2006) ISBN 0312440839.

**Not Required Reference Texts:**

OCEANOGRAPHY: AN INVITATION TO MARINE SCIENCE (7<sup>th</sup> edition by Tom Garrison; ISBN-10: 049539193X) or similar introductory oceanography text  
 Marine Botany by Clinton Dawes (ISBN-10: 0471192082)

**Powerpoint presentations and links to further references (texts, video, urls etc) will be available on blackboard.**

**Student Term Papers:** One 5-page paper on any aspect of marine botany (must be approved by instructor).

**Grades:** Primary Literature Summaries 5% X 4 = 20%; Midterm: 20%; Term Paper: 35%; Term Paper Presentation 5%; Final: 20%; All Exams Open Notes

**Marine Botany-BSC 4404: Scientific Term Paper (35% of your grade)**  
**(Save as Reference when you start your writing-read again)**

**Why should I write a scientific term paper?**

If you stay in science or not, learning the skills of critical thinking, analysis, synthesis and writing are probably the most important ones you will acquire in college. If you go into a science-oriented career, you will soon find that you will be asked to write reports, synthesize the scientific literature on a particular subject, and/or be required to write proposals and technical reports and manuscripts for refereed journals.

Even the greatest writers struggle with revision after revision, and will tell you the best way to write well is to practice. Since many science classes in college do not offer you the opportunity to learn this important skill, take the opportunity to learn to write “scientifically”. Remember this is for you and your future success, so do not cut corners or leave it to the last moment-It will show! We use the software “Safe Assign” to make it fair for everyone who tries hard and writes his/her own research paper.

All good writers also start with an outline to help organize their thoughts; this outline should be very detailed, to the point where someone will know what information you are going to cover in each paragraph. The outline will help you write faster and keep you from getting writers block by staring at a blank page. Most word processing programs have an outline format (see bullets & numbering or use your help). Your outline should be 2 complete pages, single spaced and with 1 inch margins.

Good luck and approach this exercise as an important skill you are developing for yourself! Pick a topic you are interested in so that you will enjoy the process.

**Objectives:**

1. Learn to access electronic databases of the primary literature (Scientific Journals). Most books have information that is already 4-5 years old or older.
2. Read original research, understand results, and evaluate conclusions based on research. Be critical! Ask yourself: do their results really support conclusions?

3. Synthesize information from various studies and present different and/or similar points of view on a topic. Science is not straightforward. For example, most scientists will agree that CO<sub>2</sub> is increasing in the atmosphere causing global warming and sea level rise, but a lot of debate exists on the rates of sea level rise and local effects. What are the different points of view? What kind of data and results bring different scientists to different conclusions?
4. Scientific writing is VERY different than English composition. Scientific writing is more direct, based on facts, uses data and logic to make sound points & conclusions. There is no room for “your opinion” unless you are an expert and then you can only use the 3 P words: possibly, probably and potentially ... to present your “expert opinion”. Science is not a “belief”.
5. Writing composition is still VERY important even in scientific writing-if you are writing a proposal, the reviewer is more likely to give you the money if your proposal is not only sound science, creative, but is a comfortable read. If you know that your writing is weak-pick up some scientific and technical writing books TODAY-you can get used ones for very cheap on the web.
  - Use an introductory paragraph to introduce your entire paper; what should the reader expect (college level writing).
  - Use introductory topic sentences for each paragraph.
  - Use a well-organized series of paragraphs each focusing on a different point, but with a common thread (write in the margin the topic in each paragraph as you go in your final drafts to check that each paragraph has a well focused topic).
  - Use transitional sentences between paragraphs-make it flow!
6. The final objective is to learn about a topic of interest to you in detail; you will find each topic has a lot of depth in the scientific literature, the longer you keep looking for information, the more you will find (guaranteed).

**To master the material covered in this course it is expected that the student will spend a minimum of two hours per week per credit hour on the out of classroom assignment.**

#### **Citing references:**

- DO NOT QUOTE!! You do not use quotations to quote information in scientific technical writing. Put it in your own words and reference the author. For example: CO<sub>2</sub> increased 10-fold over the last 100 years (Smith, 2008).
- Include quantitative information to make your point. For example: CO<sub>2</sub> increased from 300 ppm to 350 ppm over the last 100 years (Smith, 2008).
- In the text you need to include the author/authors if only 1-2 (Smith 2008, Jones and Smith 2000); if you have 3 or more it is referenced in text as (Smith et al. 1980). Always list references in chronological order with the earliest work referenced first.
- You can also use the reference as the subject: Jones and Smith (1980) found CO<sub>2</sub> increased 10-fold over the last 100 years. In this case, you only put the date in parentheses. Jones et al. (1999) measured...
- In your literature cited section at the end of your paper you should reference your source (authors, date, title, journal, volume, pages: book includes title book, section title, editors, and publisher) and use hanging indent in your word processing program (use help if you do not know how). For example:

#### **Literature Cited**

- Bosence, D. 1989 Surface sublittoral sediments of Florida Bay. *Bulletin of Marine Sciences* 44, 434-453.
- Carignan, R. & Klaff, J. 1980 Phosphorus sources for aquatic weeds: water or sediments. *Science* 207, 341-370.
- Chang, S.C. & Jackson, M.J. 1957 Fractionation of soil phosphorus. *Soil Science* 84, 133-144.

Chave, K.E. & Schmalz, R.F. 1966 Carbonate-seawater interactions. *Geochimica et Cosmochimica Acta* 30, 1037-1048.

Morel, F.M.M & Hering, J.G. (eds). 1993 Principles and Applications of Aquatic Chemistry. John Wiley & Sons, Inc., New York, pp. 237-318.

### **Formatting:**

- Use times 12 pt. for your text font.
- Double space your entire document.
- Do NOT use headings and sub-headings- Challenge yourself to use transitional sentences to flow from one idea to next; make sure your paragraphs are limited to <1 page & at least 4-5 well developed sentences.
- Must be typed!
- You may include figures, tables; they must be #ed and referenced in text (Table 1) or (Fig. 1).
- You must have 5 pages of text double spaced! Only 1 inch margins Left/Right/Top/Bottom.

### **Presentations:**

- You will be asked to give a short presentation of your term paper in class during the final exam period. For this exercise, you will construct 2 powerpoint slides and have 2 minutes for your presentation. You will “get the hook” at 2 minutes so be concise and know what you are going to say (practice and check your timing). The powerpoint slides will need to be uploaded to blackboard **November 26<sup>th</sup>**, the day the paper is due by midnight.

### **Marine Botany-BSC 4404: Paper Reviews (4 x 5% of your grade = 20%)**

**You will be given (posted to blackboard) 2-3 papers from the scientific literature on a particular subject discussed in class lecture: Pt1. Subject areas are Physical, Chemical and Biological Ocean Topics and Pt2. Coral Reef Ecosystems. I suggest that you approach this assignment in the following way:**

- Read the papers in their entirety.
- Reread more carefully asking yourself the following questions while **taking notes**:
  - What is the topic being discussed?
  - What are the questions being asked or hypotheses tested?
  - What is the approach or methods being used?
  - What are the results?
  - Did they answer the questions and or hypotheses tested?
  - What is the significance of their results?
  - Did their research provide a “new” understanding of the topic?
- After reading all the papers on the subject area ask yourself the following questions, again taking notes:
  - What is the overarching theme of the topics from **all** papers?
  - Write a topic sentence or two that introduces this broader theme.
  - Write a topic sentence or two that describes the approach/es used in the papers to address theme.
  - Write a topic sentence or two that captures general results.
  - Now incorporate the last 4 bullets into an introductory paragraph to your 2-page summary.



- Following that paragraph, take the highlights and expand upon them, including details of the results-discussions, etc. and outline the next 3-4 paragraphs. Follow your outline and expand into 3-4 paragraphs.
- Write the conclusions and major final discussion points of paper.
- Now develop this into your closing paragraph.
- Thus, you should have 1 introductory paragraph with topic sentences, 3-4 main body paragraph (the beef of the review) and then a closing paragraph (conclusions, further research discussed, new ideas to follow, lingering controversy, etc).
- Don't forget to use spell check, good grammar, and transitional sentences.
- These writing exercises will help you learn the process of scientific writing before you are asked to write your term paper and reinforce the concepts we are learning in class.
- Please reference the papers specifically, as described above in citing references, when giving details on a particular paper and in your introduction and conclusion in your text and include bibliography (2-3 papers in APA format or equivalent).

### **Grading:**

50% - Writing Style (included all elements above)

- 10 pts spelling
- 10 pts topic sentences
- 10 pts well-developed sentences
- 10 pts well-developed paragraphs
- 10 pts transitional sentences

50% - Synthesis of the Papers (scientific information and analysis)

- 10 pts methodology/approach
- 10 pts covered what generally research was about
- 10 pts details of results
- 10 pts synthesized papers
- 10 pts significance of results

### **Religious Accommodations:**

Students who wish to be excused from coursework, class activities or examinations must notify the instructor in advance of their intention to participate in religious observation and request an excused absence.

### **Disability policy statement**

In compliance with the Americans with Disabilities Act (ADA), students who require reasonable accommodations 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, LA 240 (954-236-1222); in Jupiter, SR 110 (561-799-8010); or at the Treasure Coast, CO 117 (772-873-3441)—and follow all OSD procedures.

### **Code of Academic Integrity policy statement**

Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty 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.

[http://www.fau.edu/ctl/4.001\\_Code\\_of\\_Academic\\_Integrity.pdf](http://www.fau.edu/ctl/4.001_Code_of_Academic_Integrity.pdf)