

 <p data-bbox="430 325 950 430">NOVA SOUTHEASTERN UNIVERSITY Oceanographic Center</p>	<p data-bbox="1096 199 1323 262">Course Syllabus (Summer 2016)</p>
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Last Date Revised: January 31, 2016

I. COURSE NUMBER AND TITLE: Understanding Corals From the Inside Out: Comparative Histopathology

Course/section Number(s):

- 52536-OCMB-6460-OD1 Marine Biology electives
- 52538-MEVS-5150-OD1 Marine Environmental Sciences electives
- 52537-BMME-8040-OD1 Biological Sciences electives

Days: 9 May–29 July, 2016, Online study and 9:00 AM–5:00 PM 11–15 July, 2016
 Building & Room: Online (9 May–8 July, 18 July–29 July), Forman 120 (11–15 July)

II. INSTRUCTOR:

Esther C. Peters, Ph.D.
 Phone: 703-624-0143 Email: epeters@nova.edu
 Office: N/A
 Office Hours: By appointment.

III. COURSE DESCRIPTION:

This course presents the microscopic anatomy of scleractinian corals and gorgonians (Phylum Cnidaria, Class Anthozoa) to support studies on their ecology, physiology, reproduction, biochemistry, systematics, molecular biology/genetics, immunology, embryology, and pathology. Topics covered include histology; coral diseases; sample collection, preservation, processing, and histoslide preparation (lecture and discussion only, no laboratory); and slide reading of healthy and diseased specimens using light microscopy and virtual microscopy. The course begins with online readings and research, and then students will meet at NSUOC for one week of full-time lecture and laboratory sessions. This summer only: Auditing students may meet with Dr. Peters in Hawaii at the 13th International Coral Reef Symposium for one week of lectures, workshops, paper presentations, and discussion sessions. Participants may bring histoslides from their own research to share with the group and discuss with Dr. Peters. Course Description to go into BANNER and on the website (paragraph).

IV. COURSE LEARNING OUTCOMES*:

At the conclusion of this course the student will be able to:

- Demonstrate a basic understanding of the microscopic structure of cnidarian cells and tissues.
- Relate their structure and composition to metabolic function and organismal processes.
- Compare the microscopic anatomy of different anthozoan species.
- Understand pathobiology concepts and investigations.
- Describe the histological techniques used to prepare tissue sections for microscopic examination.
- Distinguish diseased tissue from tissue that is within normal limits.
- Identify diverse symbionts and their roles in the holobiont (viruses, bacteria, protozoa, algae, fungi, metazoans).
- Appreciate the value of histology to inform various fields of scientific investigation and contribute to our understanding of coral reef ecosystems.

*These are directly related to the Program Learning Outcomes for Marine Biology, Coastal Zone Management and Marine Environmental Science.

V. REQUIRED TEXTS AND MATERIALS:

Students need to have access to a recently published (within the last 6 years) atlas of human histology and histopathology or they may use online resources. This is one example:

Atlas of Histology with Functional and Clinical Correlations
Paperback, July 2010
By Dongmei Cui, William Daley, Jonathan Fratkin, Duane Haines, et al.
ISBN-10: 0781797594
ISBN-13: 978-0781797597

Other resources will be posted on Blackboard for students to access.

VI. COURSE SCHEDULE AND TOPIC OUTLINE:

Histology Basics

- Lesson: Microscopic Anatomy
- Date: May 9 through 27, 2016 (online)
- Topics: Cell and tissue structure and function
- Readings: Read chapters on cell biology, epithelia, connective, muscle, and nervous tissue in the histology text. Read Peters' Pointers on these topics on Blackboard.
- Assignments: Outline or prepare a concept map of the key features of cells and tissues that apply to (1) mammals and (2) anthozoans, submit to Dr. Peters by e-mail.

Coral Basics

- Lesson: Physiology and histology
Date: May 30 through June 24, 2016 (online)
Topics: Anatomy, physiology, reproduction, histology
Readings: Pages in Peters' Modules and the Coral Disease and Health Consortium Histopathology II Report on Blackboard
Assignments: Complete and submit Definitions to Dr. Peters by e-mail.

Investigating Coral Health

- Lesson: Planning and implementing coral studies
Date: June 27 through July 8, 2016 (online)
Topics: Integrating coral histology with other methods and techniques
Readings: Pages in Peters' Modules and find 5 journal articles or books on a study question of interest to you.
Assignments: Prepare a 2-page, single-spaced research paper on a topic related to the histology or histopathology of corals. This can be on research you are doing or plan to do or on something you have wondered about. Format will be provided on Blackboard. Submit the Research Paper to Dr. Peters by e-mail.

Slide Reading Laboratory

- Lesson: Reading and interpreting coral tissue sections
Date: Week of July 11, 2016 (NSUOC)

Topics and Assignments:

- July 11 Review information on corals, their diversity, and natural history; basic anatomy and histology of corals
Slide reading (what coral tissue sections look like microscopically), Worksheet 1, Quick Quiz 1 (cell biology, tissues, definitions, corals) and review
- July 12 Histotechniques for corals; comparison of fixation and processing procedures for different applications; virtual microscopy; slide reading (identification of normal coral cell and tissue components), Worksheet 2; Quick Quiz 2 (coral histotechniques, anatomy, and histology) and review
- July 13 Compare coral histology and variations among species; discuss Research Papers; slide reading (species variations), Worksheet 3; Quick Quiz 3 (cell and tissue variations) and review
- Coral diseases; histopathology and interpretation of diseased coral tissues; slide reading (diseased corals), Worksheet 4,

- July 14 Quick Quiz 4 (histopathology and coral diseases) and review
- July 15 Coral diseases; collection, management, and analysis of histological data;
slide reading; Final Exam

Wrap-Up

- Lesson: Synthesis and Reflection
- Date: July 18 through 29, 2016 (online)
- Topics: What do you know now?
- Readings: Review course materials and notes.
- Assignments: Revise and submit Research Paper.

Prepare a 2-page, single-spaced report on how this course has affected your understanding of corals.

Submit to Dr. Peters by e-mail.

Note: This is a tentative schedule that may be changed. Students will be provided a minimum one week advance notice of any change when possible.

VII. GRADING CRITERIA

- Key Features Outlines or Concept Maps (3% = 1.5% Mammals, 1.5% Anthozoans), instructions and rubric provided on Blackboard, due May 27
- Definitions (5%), words and instructions provided on Blackboard, due June 24
- Research Paper (10%), instructions and rubric provided on Blackboard, draft due July 8, final due July 29
- Slide Reading Worksheets (3 points each, 12%), done during the lab sessions each day
- Quick Quizzes (10 points each, 40%), taken during the lab sessions July 11–15
- Final Exam (25%), taken last day of the lab sessions, July 15
- Report on Understanding Corals (5%), due July 29

VII. COURSE REQUIREMENTS AND POLICIES:

ATTENDANCE

As a requirement for accreditation, regular attendance is necessary. Each professor has the responsibility to enforce class attendance. To fulfill this requirement, students must have logged

in, accessed, and/or interacted with the majority of online course requirements (e.g. assignment submissions, asynchronous discussion) by the first week of the session or they may be withdrawn from the course by the instructor through the Program Office. For this reason, if students anticipate or encounter any reason why they may be unable to engage with their online coursework for an extended period during a term, they must communicate this to their instructor and the Program Office as soon as possible. Students do have the option of requesting an Incomplete; if this is granted by their instructor, they then have 3-months from the end of the term date to submit the required course work as decided with the instructor. An incomplete grade agreement form must be completed and filed with the distance education office. An instructor reserves the right to request original written documentation to substantiate any such absences. A falsified excuse is cause for disciplinary action. An Incomplete course graded I must be completed in one semester or the grade is changed to F. All students are referred to the section 3.5.2. of the Oceanographic Center catalog (<http://nova.edu/ocean/forms/nsuoc-2014-2015-catalog.pdf>) for details on course withdrawals and refunds.

ACADEMIC HONESTY

In order to ensure the highest standards of academic honesty and ethical behavior, the NSU policies on cheating and plagiarism will be strictly enforced. See the NSU Student Handbook for more information at <http://www.nova.edu/cwis/studentaffairs/forms/ustudenthandbook.pdf>. I am empowered by the policy to penalize a student suspected of academic dishonesty, plagiarism, or otherwise misrepresenting work and I will do so and report that student to the Dean of the OC. Nova Southeastern University has contracted with **turnitin.com** to provide plagiarism detection services, and I will submit any suspicious documents to this service.

The use of cell phones, or any other electronic devices not specifically allowed by me, during an exam is not permitted. The use of such devices for any reason will be assumed to be for the purposes of cheating and will result in your dismissal from class and administrative action up to permanent expulsion from all NSUOC programs. If you need the phone for emergency notifications, or the like, leave the phone with me or the proctor at the start of class. You will be immediately notified if there is an incoming call.

EXPECTATIONS

You can expect that I will arrive on time for lectures and be well prepared. You can expect that I will be clear about my expectations and the criteria I use in assigning grades and that I will be fair and equitable. I will treat everyone in the class with consideration and respect.

I expect you to come to class, arrive on time, and be prepared for lecture and lab. I expect you to turn off your cell phones, pagers, and hand-held electronic devices as a gesture of reciprocal respect. If you bring a computer to class, I expect you to use it to take notes and record classroom information. I expect you to stay awake, take notes, participate in discussions and ask questions. I expect you to turn in your assignments on time and in good condition.

X: UNIVERSITY-WIDE POLICY STATEMENTS

A. Academic Misconduct: Academic misconduct appears in a variety of forms (including plagiarism). It is a violation of NSU academic policy and may be punished in a variety of ways, from failing the assignment and/or the entire course to academic probation, suspension or expulsion. If you have questions about what constitutes academic misconduct before handing in an assignment, see your instructor or the NSU Student Handbook at <http://www.nova.edu/cwis/studentaffairs/forms/ustudenthandbook.pdf>.

B. ADA Policy: Nova Southeastern University provides accommodations for students with documented disabilities. If you have a disability for which you believe you require accommodation, please contact Academic Services (<http://www.nova.edu/disabilityservices/>, 954-262-7189).

C. Last Day to Withdraw: Due to the compressed nature of this course you will be able to obtain a full refund of your tuition up to July 12, 2015. There will be no refund after that date. None of the lab fee is refundable; however you will own the airline ticket that was purchased for you. It is your responsibility to formally withdraw by completing the appropriate forms to obtain a refund (<http://www.nova.edu/ocean/coursepolicy.html>). A request for tuition refund must be made in writing at the time of withdrawal. Refunds will be made solely at the option of the university and will be based on the legitimacy of the reason for withdrawal. Should you fail to appropriately withdraw from this course, and then earn a grade below your expectations, I will do what I can to see that the grade is reported on your transcript. I will NOT backdate paperwork so that you can avoid earning a grade lower than you like.

D. Email Policy: All email communications between students and faculty must be conducted via NSU email accounts (<http://www.nova.edu/common-lib/policies/emailcomm.policy.html>). This requirement will assist NSU in communicating more effectively and protecting your privacy. Emails sent to faculty from non-NSU accounts will be returned to the sender with instructions to resend the communication from your NSU account. To set up an NSU email account or to get help with an existing account, go to https://www.nova.edu/sbin/account_request. Also, the computer help desk is available to assist you with questions regarding your NSU email account. It can be reached at 954-262-HELP (4357).

E. Student Course Evaluations: Student comment and feedback evaluating each college class is an important tool to evaluate program effectiveness. Participation in this process is a responsibility of each student.

F. Grading System

The following system is used to grade academic performance:

GRADE	DESCRIPTION
A	Excellent
B	Satisfactory
C	Marginal Pass
D	Poor

F	Failure
W	Withdrawal: Given after the third class week or termination by the instructor for non-completion of the course by the student.
I	Incomplete: Given when most (80 percent), but not all, work has been completed.
Au	Audit
P	Pass

Professors may use + or – in grading. **However, the grading scale ranges from A to D-, no A+ or F+ are awarded.** A grade of incomplete (I) must be requested from the instructor, have the Associate Dean’s approval, and be accompanied by a **completed contract specifying outstanding course requirements and completion dates.** Completion of the course graded incomplete must occur within one semester (or 3 months) of the end of the course and the incomplete be changed to a different grade. If the course is not completed in 3 months, or the student has not withdrawn and received a W, the incomplete will automatically be converted to a grade of F. Under unusual circumstances students may request a time-extension to complete the course. Such requests must be submitted to, and approved by, the Associate Dean of Academic Programs prior to the end of the 3-month time limit. **There are no exceptions to this rule. Securing the completed and signed incomplete contract forms is the responsibility of the student.**