

NSU Oceanographic Center- 2015 SYLLABUS HISTOLOGY OF MARINE ORGANISMS

Monday/ August 24 – November 9, Monday 6:30-9:30
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- 8/24/15 **Histology History and Development of Light Microscopy**
 - Lab: Intro to Lab Equip & Demos (LM/EM)

- 8/31/15 **Electron Microscopy and Electron Optics**
Lab: Protocols & Demos (LM/EM)

- 9/07/15 Labor Day (No Class)
** Lab Project Proposals Due Via Email This Week**

- 9/14/15 **Light & Electron Microscopy Techniques and Methods, Exam Review**
** Teams Schedule with TAs for Tissue Processing**

- 9/21/15 **Exam #1, Cell Organelles in Light and Electron Microscopy**
LM/EM Researcher Presentations
** 10min presentation on histology/EM researcher**

- 9/28/15 **Tissues and Cells in Light and Electron Microscopy**
LM/EM Researcher Presentations *

- 10/5/15 **Microbial and Sponge Characterization in the LM (FISH) and EM**
LM/EM Researcher Presentations *

- 10/12/15 **Coral Tissue and Cells in Histology and EM**
LM/EM Researcher Presentations *

- 10/19/15 **Fish Cell Biology/ Applications of LM and EM**
Lab Project Presentations
** 10 min student lab presentations**

- 10/26/15 **Overview/Tissue & Cell Structure / Function in Marine Invertebrates
Exam Review**, Lab Presentations

- 11/02/15 **Exam #2**, Lab Presentations

- 11/9/15 Lab Presentations, **Lab Reports and “Researcher Papers” Due**

2015 Grade Breakdown

Exams	40 points	
Examination 1		15 points
Examination 2		25 points
Lab	30 points	
Lab Paper		15 points
Team Lab Presentation		10 points
Lab Activities (TA Input)		15 points
	20 Points	
Histology/EM Researcher Paper		
Paper		10 points
Paper Talk		10 points

Useful Texts:

Wheater's Function Histology A text and Colour Atlas, Fifth Edition , Young, B, Lowe, J. Stevens, A, Heath, J. 2006, Elsevier. Available from Amazon (\$35)

Cell and Tissue Ultrastructure: A Functional Perspective [Hardcover]
Patricia C. Cross K. Lynne Mercer,1993 W. H. Freeman; 2nd edition (August 15, 1993)
Available from Amazon (\$65).

Course Description, Learning Outcomes

August 24 – November 9, 2015

Histology of Marine Organisms

This intensive course will examine the fine structure of marine organisms and range in focus from bacterial cells to fish tissue. Lectures and labs will be conducted to examine structure and function of tissue and cells of several marine groups. Light microscopy in conjunction with molecular methods for study of bacterial cells such as FISH (Fluorescence In-situ hybridization) will be discussed. Additionally, the complementary nature of cell and tissue imaging using light and electron microscopy will be examined. The lab portion of the course will follow the protocols discussed in lecture. Fixed and embedded blocks of student research specimens will be supplied and students will section and stain their samples for examination in the light microscope. Imaging and image capture methods including quantification of structural features using ImageJ will be conducted. Students will prepare their results for presentation and submit a term paper at the end of the semester.

Learning Outcomes:

- 1. Students obtain an understanding of the relationship between structure and function of tissue and cells of marine organisms**
- 2. Skills acquired for block sectioning and staining for light microscopy.**
- 3. Gain knowledge required for use of the light and epi-flourescent microscope.**
- 4. Use of techniques for collection of images and image processing including ImageJ.**
- 5. Understand the relationship between histology and ultrastructure.**
- 6. Formal presentation of histology research results will be accomplished.**