Microscopy & Photomicrography
Biology 391
Spring 2005

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OH - T 3:30-4:30, Th 1-2
723 HH, 338-2951

TENTATIVE SCHEDULE

DATE		TOPIC	TEXT	LAB
1	February	Introduction - History & the Single Lens		
8		The Compound Microscope & Kohler Illumination	1-9	2
15		Light Refraction & Lens Aberrations	10-24	3-5
22		Illumination - Brightfield, Darkfield, & Phase Contrast	83-98	15-17
1	March	Objectives I - Numerical Aperture, Light Diffraction, Image Formation, & Resolution	55-76	6-11
8		Objectives II, Oculars & Conjugate Planes - Achromat, Fluorite, & Apochromat, and Phase Contrast	76-82 88-92	12-14 18-26
15		EXAM 1 - Digital Imaging, Evaluation, & Presentation		
22		Spring Break		
29		Imaging Demonstrations at the Exploratorium		
5	April	Films, Analog, & Digital Imaging		
12		Fluorescence Microscopy & Photomicrography		
19		Confocal Microscopy w/ Dr. Hans Holter		
26		Transmission & Scanning Electron Microscopy and Scan Probe Microscopy		
3	May	Presentation of Microscopy Projects		
10		Presentation of Microscopy Projects and Review		
17		EXAM 2 (6:10 - fini)		

WEB PAGE - http://online.sfsu.edu/~antipa/biol391/ and Blackboard

REPORTS - Each student will write four (4) short reports. The Hooke/Leeuwenhoek/You report (due 1 March) will be based on your readings and observations with a hand lens. Laboratory Report #2 is to be based on an exercise performed in the laboratory between 15 Feb and 8 March (due within two weeks of the date of the exercise). Report #3 is to be based on your interpretation of a current exhibit in the exploratorium relevant to microscopists or photomicroscopy (due by April 26th). The fourth report will be a short written summary to accompany a short oral and digital presentation of your project to the class (due the day of your presentation).

The laboratory report encourages you do some outside, in depth reading and thinking about the significance of the laboratory exercises. Reports should be concise and written in your own words. It is not necessary to copy the sections on materials and methods from the syllabus; however, sections on observations, results, and interpretation are suggested. Drawings and diagrams should be as accurate as possible. Each report will be graded and returned.

PROJECTS - Each student will present the results of their project which can include microscopic examination of biological material OR instruction in microscopy. The latter could be derived from experiments performed in class and could be an extension of Report #2. or based on illustration(s) from the Exploratorium. All projects will be presented in a digital form and might ultimately be developed for presentation on the web. Each report will include questions in a true and false or multiple choice format that might be included in the final exam. Joint or group projects are possible.

Drops and Withdrawals - The drop period for Spring 2005 is 1 FEBRUARY through FRIDAY, 25 FEBRUARY and students are responsible for initiating the drop either through the WEB or by touch-tone. From April 1st to April 29th the request for withdrawal must be serious and compelling and follow the guidelines set forth by the University and the Department of Biology. All withdrawal requests during this period require written documentation from an independent third party and a current, unofficial SFSU transcript. From April 30th - May 20th withdrawals are not normally permitted. Should you have further questions, please refer to the departmental withdrawal policy as stated in the memo to all students and faculty which is available in the Department of Biology office in the Franciscan Building.

Text - Antipa, G. A. 2005. Reader for Biology 391.

Final grades in Biology 391 will be based on total accumulated points:

First Exam (15 March)	50 pts
Second Exam (17 May)	50 pts
Hooke/Leeuwenhoek/You (1 March)	25 pts
Laboratory Report #2	25 pts
Exploratorium Report	25 pts
Project (Written 15 pts - 10 OR 17 May Presentation 10 pts -10 OR 17 May)	50pts
Total Possible	225 pts

BOOKS ON RESERVE

QH212 E4 B69	Bozzola, J. J. & Russell, L. D.	1992. - Electron Microscopy: principles and techniques for biologists
QH31 L55D6	Dobell, C.	1932. - Antony van Leeuwenhoek and His Little Animals
QH204 F65 1985bx	Ford, B. J.	1985. - Single Lens
QH 204 F65	Ford, B. J.	1991. - The Leeuwenhoek Legacy
QH271 H79	Hooke, R.	1665. - Micrographia
QH205.2 L6313	Locquin, M. V. & Langeron, M.	1983. - Handbook of Microscopy
QH211 M35X	Malies, H.	1959. - Applied Microscopy & Photomicrography
QH205 N38	Needham, G. H.	1958. - The Practical Use of the Microscope
QH207 R384	Rawlins, D. J.	1992. - Light Microscopy
ANTGR b5	Rost, F. & Oldfield, R	2000. - Photography with a Microscope
QH212 C6S55	Smith, R. F.	1990. - Microscopy & Photomicrography
QH205.2 S66	Spencer, M.	1982. - Fundamentals of Light Microscopy
QH205.2 W55X	Wilson, M. B.	1976. - The Science and Art of Basic Microscopy
QH205 W75	Wilson, S	1967. - Applied and Experimental Microscopy