Biol 227/2 Laboratory Studies of Organisms

TUTORIAL :	Location : *CC-310*	Day : *Monday*	Time : *10:15 - 11:30*
LABS	Location: *SP 380. 19*	Day: *Wed or Thur*	Time : *13:30-17:30*

Prerequisite Biol 225; Biol 26 (previously or concurrently)

Overview This course is a hands-on survey of organism diversity, covering major bacterial and protist supergroups, as well as fungal, animal and plant phyla. In the laboratory, we survey bacterial cell and colony morphological diversity, review how to stain them, then use these techniques to estimate their colony and cell concentrations. We also use light and dark field microscopy to examine reproductive and structural diversity of unicellular protists and multicellular fungi. Insight into the nature and evolution of animals is developed through traditional slide work, behavioural studies on worm locomotion, arthropod and mollusk classification and exercises in vertebrate homology. Finally, studies in plant structure, development and physiology are used to investigate plant nature and diversity. Throughout, this course reviews the structural and developmental diversity of organisms and the often-surprising character homologies that connect living and extinct organisms within modern phylogenies.

Key Reminders

(1) Do not copy, paraphrase or translate part or all of your lab reports *outside or inside the lab*. Just like copying an essay, report or someone else's exam, this is plagiarism - a serious academic offence.

(2) **The final examinations will be scheduled during the formal examination period.**

Text

Required *Campbell, N. A. et al. 2008. Biology 9th Edition. Benjamin Cummings, New York.*

Suggested (useful but not required) *Van De Graaff, K. M. and J. L. Crawley, 1996. A photographic atlas for the biology laboratory. Morton, Englewood, Colorado.*

Lab Manual -on the Biology 227 Moodle site

Grading

The majority of marks in this course (2/3) will be based on two final examinations, *a three hour theory exam and a 90 minute practical exam.* The balance of your term marks will be earned for the quality and content of your lab reports as well as how well you do on weekly quizzes. Each section will account for approximately 1/3 of the marks and will be graded by the instructor responsible for that section. Each lab counts for up to 2 marks *(24% total*), but note, the final practical exam that counts for 34% of your mark is based entirely on the lab exercises. Furthermore, the labs illustrate the theory and reinforce the nomenclature introduced in each tutorial. In other words, it is not in your interest to skip either lectures or labs. The exact proportion of marks allocated for term work and final exams follows on the next page.

Sections 1 (microbes) & 2 (animals): total 67 %

Laboratory work

Reports to be finished in class: *up to 2 marks each for each* report	**14** %
Final practical exam *12 microbe, 12 animal*	**24** %

Tutorial and Theory

Quizzes up to *1 each,*	**7** %
Final, multiple choice theory exam (66 questions)	**22** %

Section 3 (plants): 33%

Lab work

Reports *up to 2 each*	8 %
Quizzes (0.5 each x 4)	**2** %
Final practical exam	**10** %

Theory

Final theory exam	**13** %

Laboratories will be scheduled each week in room SP 380-19 and *attendance is compulsory*, that is there are no make - ups. If you miss the lab you miss the marks.

There will be a quiz at the beginning of each lab. If you are more than 15 minutes late, you will get 0 on the quiz.

Contact Information

The Biol 227/2 Moodle site *will contain* tutorial, lab and other material or interest. The PDF files require that you have the Adobe Acrobat Reader (*or some other PDF reader such as Macintosh Preview*) installed on your computer. This can be downloaded free from the Adobe website.

Technical Support

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Schedule

Week 1: Sept 2-8 *Read Campbell Ch 26 - be familiar with phylogenies*

Week 2: Sept 9-15 *Read Campbell Ch 27*

Lab 1. Microscope use, bacterial characters and counts

Week 3: Sept 16-22 *Read Campbell Ch 28*

Lab 2. Unicellular and colonial eukaryotes

Week 4: Sept 23-29 *Read Campbell Ch 31*

Lab 3. Fungi.

Week 5: Sept 30 - Oct 6 *Read Campbell Ch 32 & 33*

Lab 4. Invertebrate morphological diversity

Week 6: Oct 7 - 13 *Review Campbell Ch 33.3, 33.4, 50.6*

Lab 5. Locomotion in three worms

Week 7: Oct 14 - 20 *Review Campbell Ch 33.3, 33.4*

Lab 6. Mollusk and Arthropod diversity and classification

Week 8: Oct 21 - 27 *Read Campbell Ch 34*

Lab 7. Vertebrate homology and evolution

Week 9: Oct 28 - Nov 3 *Campbell Ch 39 (selected sections)*

Lab 8. Growth, development and plant responses to stress

Week 10: November 4-10 *Campbell Ch 29 , 30 (selected sections)*

Lab 9. Plant diversity

Week 11: Nov 11 - Nov 17 *Campbell Ch 35 (selected sections)*

Lab 10. Morphology and anatomy of vascular plants

Week 12: Nov 18 - Nov 24 *Campbell Ch 9 , 10, (selected sections)*

Lab 11. Photosynthesis and respiration

Week 13: Nov 25 - Dec 1

Review

Last modified: Tuesday, August 14, 2012