

BIOL 3102 Microbial Eukaryotes
Fall
Syllabus and Course Organisation
Instructor: Alastair Simpson

OVERVIEW OF THE COURSE:

Microbial eukaryotes (~protists) are key to understanding the evolution of eukaryotic cells, and the emergence of familiar multicellular groups. Microbial eukaryotes play a major role in most ecosystems, both as the source of a large fraction of global primary production, and as major consumer components in most food webs. Many of the most serious infectious diseases of humans and livestock, and in aquaculture, are caused by microbial eukaryotes. Microbial eukaryotes show us the true diversity of eukaryote cells and genomes, and can shed additional light on basic principles within these parts of biology. Traditionally amongst the least-studied groups of organisms, the scientific understanding of microbial eukaryote biology and evolution has improved tremendously in recent years.

This course will examine aspects of the basic biology and evolution of microbial eukaryotes from a comparative perspective. Photosynthetic groups ('microalgae'), and free-living heterotrophs and parasitic forms ('protozoa') will all be covered.

CLASS TIMETABLE:

Lectures and other activities (e.g. labs and tests) are held on Mondays 12:30-1:30pm, Wednesdays 12:30-1:30 pm, and Fridays 11:30 am-1:30 pm (i.e. two hours). See calendar (last page) for a full list of dates and activities.

LECTURES:

The lectures will be held in Room C220 of the Life Sciences Centre common area.

The lecture component of the course is divided into three sections:

Section 1 (~9 lectures): An introduction to microbial eukaryotes; A overview/revision of the diversity of microbial eukaryotes; The specific biology of some important and relatively well-studied groups (e.g. ciliates).

Section 2 (~11 lectures): The organization of the cytoskeleton, and examination of cell biological features particular to microbial eukaryotes (mineral scales, extrusomes, etc); Locomotion and nutrition (especially feeding); the limited forms of multicellularity in certain microbial eukaryotes; microbial eukaryote parasites.

Section 3 (~8 lectures): Topics in evolution: Endosymbiosis and the evolution and cell biology of the endosymbiotic organelles; Current controversies in understanding the diversity and evolution of microbial eukaryotes.

Please note that there are only five Friday Lectures scheduled for the semester, but each will run for two hours (11:30-1:30pm) rather than one hour. Three of the Friday lectures are guest lectures. The content of guest lectures is examinable, just like the regular lectures.

LABS:

There are five short labs scheduled. These will be held on various Fridays through the semester, in place of a lecture (see calendar). Labs will normally take place in Room 7012 of the Life Sciences Centre (Cell Biology Labs), but the first 'lab' is actually an AV presentation, and will be held in Room C220. The required task sheets will be made available at each lab (see below).

COURSE MATERIALS:

The material for the course is that which is covered in the lectures and labs. There is no single textbook or course pack for this course. The following resources will be made available instead:

- 1) The lecture slides will be made available online, in edited form.
- 2) There will be supplementary notes for most (not all) of the lectures. These will be made available online in pdf format before the relevant subsection of the course.
- 3) There will be a few short readings (e.g. review papers) that you will be expected to read during the course. These will be provided in class.
- 4) A handout/worksheet will be provided for each lab.
- 5) The book "Protistology" by Hausmann, Hulsman and Radek (3rd Edition, 2003) is a useful resource for some of the course. There are one or two copies of this book available in 'closed reserve' at the Killam library.

The material that is available online will be housed on Dalhousie's Blackboard Learning System (BB).

ASSESSMENT:

18%	TEST 1	
24%	TEST 2	
22%	TEST 3	
16%	QUICK QUIZZES	most Mondays throughout semester
20%	COMPLETION OF LAB WORK	Friday labs during semester

Each of the three tests cover one of the three sections of the class (i.e. they are not 'cumulative'). Each test will be 45 minutes (i.e. a full lecture time-slot) and will be held in Room C220 (the same room as lectures). The test will include multiple-choice questions, and short-answer questions. Most of the marks (75%+) will derive from the short-answer questions. The answers required will range in length from one word to about 6-8 sentences, depending on the question.

Quick quizzes will be held in class most Mondays during semester. Each quick quiz will consist of 4-5 multiple-choice or one-word-answer questions, covering lecture (and lab) material since the previous quiz. There will be 10 quizzes but only your best eight quiz marks will count (2% each; total 16%). Consult the calendar (last page) for dates that quizzes will be held (** in last column).

Each lab will include a short worksheet, which you will be required to complete and submit for marking. Usually the worksheet will be due in class on the Monday after the lab.

Conversion of marks to letter-grades: This course will use the standard scheme for Faculty of Science Classes

OTHER NOTES:

Accommodations:

Students may request accommodation as a result of barriers related to disability, religious obligation, or any characteristic under the Nova Scotia Human Rights Act. Students who require academic accommodation for either classroom participation or the writing of tests, quizzes and exams should make their request to the Office of Student Accessibility & Accommodation (OSAA) prior to or at the outset of each academic term (with the exception of X/Y courses). Please see www.studentaccessibility.dal.ca for more information and to obtain Form A - Request for Accommodation.

Requests for an Alternative Final Exam Time:

The following text is a quote from page 24 of the 2011-2012 Academic Procedures for Dalhousie University. The emphases are mine:

“A student requesting an alternative time for a final examination should be granted that request only in exceptional circumstances. Such circumstances include illness (with medical certificate) or other mitigating circumstances outside the control of the student. Elective arrangements (such as travel plans) are not considered acceptable grounds for granting an alternative examination time.....

The decision whether to grant a student’s request for an alternative examination time rests with the instructor of the course, as does the responsibility for making the alternative arrangements.

This policy may also be applied at the discretion of the instructor to tests and examinations other than final examinations.”

I have copied this here to remind you of the official rules, and to make clear that this policy will be applied to all three of the tests for this course.

CALENDAR

Day	Time	Location	Activity	Quiz
1	*12:30-1:30*	C220	Introduction	
2	12:30-1:30	C220	Lecture 1	
3	12:30-1:30	C220	Lecture 2	
4	11:30-1:30	*C220*	Lab 1 (Video)	
5	12:30-1:30	C220	Lecture 3	***
6	12:30-1:30	C220	Lecture 4	
7	11:30-1:30	C220	Lecture 5	
8	12:30-1:30	C220	Lecture 6	***
9	12:30-1:30	C220	Lecture 7	
10	11:30-1:30	LSC 7012	Lab 2	
11	12:30-1:30	C220	Lecture 8	***
12	12:30-1:30	C220	Lecture 9	
13	*12:30-1:30*	C220	TEST 1	
14	THANKSGIVING -		NO LECTURE	
15	12:30-1:30	C220	Lecture 10	
16	11:30-1:30	C220	Lecture 11	
17	12:30-1:30	C220	Lecture 12	***
18	12:30-1:30	C220	Lecture 13	
19	11:30-1:30	LSC 7012	Lab 3	
20	12:30-1:30	C220	Lecture 14	***
21	12:30-1:30	C220	Lecture 15	
22	11:30-1:30	C220	Lecture 16 (Guest)	
23	12:30-1:30	C220	Lecture 17	***
24	12:30-1:30	C220	Lecture 18	
25	11:30-1:30	LSC 7012	Lab 4	
26	12:30-1:30	C220	Lecture 19	***
27	12:30-1:30	C220	TEST 2	
28	REMEMBRANCE DAY		NO LECTURE	
29	12:30-1:30	C220	Lecture 20	
30	12:30-1:30	C220	Lecture 21	
31	11:30-1:30	C220	Lecture 22 (Guest)	
32	12:30-1:30	C220	Lecture 23	***
33	12:30-1:30	C220	Lecture 24	
34	11:30-1:30	LSC 7012	Lab 5	
35	12:30-1:30	C220	Lecture 25	***
36	12:30-1:30	C220	Lecture 26	
37	11:30-1:30	C220	Lecture 27 (Guest)	
38	12:30-1:30	C220	Lecture 28	***
39	12:30-1:30	C220	TEST 3	