1-2015

BIOB 170N.01: Principles of Biological Diversity

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BIOB 170 Principles of Biological Diversity

Course Syllabus and Lecture Outline

Spring 2015

Professor: Dr. Kevin Murray
Office: NS 113; office hours 1:00 - 2:00 pm Tues/Thurs
Contact information: phone 4495; email: kevin.murray@umontana.edu
Class meeting times: MWF, 1-2 pm; ULH

Required text:

Biology. 2nd Pearson Custom Edition for The University of Montana.
or
Campbell et al. Biology. 10th ed.

Course scope and objectives.

The diversity in form and function encountered among living organisms is astounding. From a single cell, to a simple organism such as a jellyfish, to plants and ecological communities, living things exhibit a staggering hierarchy of complex organization. Nothing found in the abiotic world (non-living systems such water, rocks, stars and yes, even computers and other man-made machines) comes close to the complexity of even a single cell.

Biological diversity manifests on many levels. For instance, we may refer to the diversity in form and function of mammal fore-limbs, or the variety of organelles found in a eukaryotic cell, the number of species in an ecosystem or even the number of different ecosystems that make-up a biome. From a temporal perspective we should also note the diverse parade of living innovations represented in the evolutionary history of life on earth.

In BIOB 170 we cannot address all of the many levels of biological diversity on earth. Our focus will be instead on the major categories of living things, ranging from unicellular bacteria, to protists, plants, fungi and animals. We will strive to attain a complete picture of the mosaic of life on earth, and, importantly, how the pieces of this mosaic (major taxonomic groups) are related to one another. For instance, consider a small pond. Within even a relatively limited ecosystem such as a freshwater pond we could likely find representatives of all major forms of life earth: bacteria, protists, plants, fungi and animals, each represented in probably numerous forms (species). BIOB 170 will provide you with principles needed to understand many things about life in that pond as well as throughout the biosphere: What is a protist? How do protists differ from each other and from other organisms such as plants and animals? What makes an "animal" an animal? Are all green, photosynthetic organisms plants? And many more questions about life on earth.

Grading.

There will be 3 regular session exams and a final exam. Exams are objective (true/false, multiple choice). Each regular session exam will be worth approximately 65 points. Your grade

will be calculated as a percentage of total possible exam points. You will require SCANTRONS for lecture exams. Fundamentally, the following grading scheme will be used:

100 – 90% = A; 89.9 – 80% = B; 79.9 – 70% = C; 69.9 – 55% = D; < 55% = F

Classroom attendance, make-up exams, extra-credit.

Your participation in classroom discussions may affect your final grade; please attend class on a regular basis. Disruptive behavior such as talking or leaving lecture early is not acceptable. If you expect to leave class early, please tell Professor before class begins. Make-up exams will be permitted only with compelling and supported reasons. Make-up exams will take place one week after the scheduled exam, immediately after class (2:00 – 3:00 pm). Extra-credit assignments may be arranged only under exceptional circumstances; please contact Professor Murray for more information.

Lecture Notes.

Undoubtedly, the art of taking clear, concise lectures notes will be one of your most valuable skills as a University student and beyond. Therefore, come prepared to class with a dedicated notebook. Date your entries and strive to keep complete, organized lecture notes. Also, a proven method of learning is the re-writing of lecture notes. This will greatly assist your comprehension of the material.

BIOB 170 Lecture Topic Schedule Spring 2015

Campbell 2nd custom ed.

Date	Topic	Text reference pages
26 Jan	Course introduction	
28 Jan	Phylogenetics & systematics	107 – 114
30 Jan	Phylogenetics & systematics	
02 Feb	Prokaryotes: introduction	127 - 129
04 Feb	Prokaryotes: metabolism & diversity	135 - 38
06 Feb	Prokaryotes: ecological relationships	139 - 142
09 Feb	Prokatyotes: ecological relationships	142 - 144
11 Feb	Protists: origins & intro	147 – 149
13 Feb	**Exam I**	
17 Feb	**No class**	
18 Feb	Protist diversity 1	150 – 154
20 Feb	Protist diversity 2	155 – 159
23 Feb	Protist diversity 3	160 – 165
25 Feb	Protist diversity 4	165 – 166
27 Feb	Protist diversity 5	166 - 170
02 Mar	Plants: intro	172 – 175
04 Mar	Plants 1: bryophytes	178 – 180
06 Mar	Plants 2: bryophytes	180 – 182
09 Mar	Protist – Plant review	
11 Mar	**Exam II**	
13 Mar	Plants: seedless vascular	183 – 185
16 Mar	Plants: seedless vascular	185 – 187
18 Mar	Plants: intro seed bearing	190 - 192
20 Mar	Plants: gymnosperms	193 –196
23 Mar	Plants: gymnosperms	193 –196
25 Mar	Plants: angiosperms	198 - 201
27 Mar	Plants: angiosperms	201 - 206

30 Mar	**Spring break**	
01 Apr	**Spring break**	
03 Apr	**Spring break**	
06 Apr	Fungi	208 – 210
08 Apr	Fungi	210 - 213
10 Apr	Fungi	214 - 224
13 Apr	**Exam III**	
15 Apr	Animals: intro	227 - 230
17 Apr	Animals: classification	231 - 238
20 Apr	Animal diversity 1	244 – 245
22 Apr	Animal diversity 2	245 – 250
24 Apr	Animal diversity 3	251 – 254
27 Apr	Animal diversity 4	255 – 258
29 Apr	Animal diversity 5	260 – 266
01 May	Animal diversity 6	260 - 266
04 May	Animal diversity 7	267 – 269
06 May	Animal diversity 8	270 – 272
08 May	Animal diversity 9	273 - 278
12 May	**Final exam (3:20 – 5:20 pm)**	