EES C04H   BIODIVERSITY AND BIOGEOGRAPHY   Cindy Bongard

(Autumn 2010)

Lecture/Discussion group: Tuesdays   8:00 - 10:00 in SW 319

Lab: Wednesday 10:00 – 1:00 (SW 313)
                Thursdays   12:00 - 3:00 and 3:00 - 6:00 (SW 313)

Office hours: (Room SW649B)   Tuesday 10-11 (or by appointment)

Course Content: Theoretical and practical aspects of the diversity of animal form and function, together with examination of the distribution patterns of representative taxa. Students will be exposed to the diversity of animal life and how this is organized for scientific study. Much of the course will be concerned with invertebrate animals, as it is amongst their phyla that the vast majority of the structural and functional diversity of organisms lies. Information on important animal groups and their evolution will be set in the context of past and present global distribution patterns.

Prerequisite: BIO B50H or BIO B50Y [formerly BGY B50H/BGY B50Y]
                or permission of the instructor

Evaluation: Mid-term test (on lecture and lab materials up to test date)   20%
            Lab reports (2); quizzes (6 + metallica exercise)   45%
            [Labs 1/2 = 15%; Quizzes = 15%; Labs 10/11 = 15%]
            Final exam (on all lecture and most lab materials)   35%

Assignments: The due dates are given in the Lab Schedule. Note that extensions are given *only* if a medical certificate is produced.
            The penalty for work handed in late is *10%* of the maximum mark available for the assignment *per day*.

Course Text: *Biodiversity and Biogeography Lab Manual + CD*
            (available from Room SW644; cost $45.00, incl. taxes)

Lecture/Discussion Topics

Lecture No.	Date	Topic
1	14 Sept	Classification: making sense of diversity
2	21 Sept	a) Describing and measuring diversity b) Spatial-temporal aspects of diversity: limits and driving forces
3	28 Sept	Spatial-temporal aspects of diversity: limits and driving forces
4	5 Oct	Changing geography - drifting continents setting the scene for changing life - and the influence of climate
5	12 Oct	Animal diversity and evolution
6	19 Oct	a) Dispersal b) Biological realms: past and present patterns
7	**Mid-term test - Tuesday 26 Oct @ 8:00 am** [in lecture room]	
8	2 Nov	Tools and approaches in biogeography; major biomes
9	9 Nov	The life and death of species: essential concepts related to speciation, extinction and dispersal
10	16 Nov	The geography of genes and chromosomes
11	23 Nov	Humans and the shaping of modern biogeography
12	30 Nov	The biogeography of the future

Lab Schedule

Lab No.	Date Week of:	Topic**
1	13 Sept	What is biodiversity? Field Trip to assess local invertebrate diversity
2	20 Sept	Lab work on local diversity **[Report due Week of 27th Sept]**
3	27 Sept	Diversity at the level of the single cell: The Protozoans (quiz)
4	4 Oct	Primitive multicellular animals: creating diversity from simple tissues and polymorphism to: Sponges and Colenterates (quiz)
5	11 Oct	Classification and phylogeny exercise: Phylum Metallica **[Report due at the end of this lab period]**
6	18 Oct	Flatworms to arthropods: blueprint for diversity [Platyhelminthes to Echiura] (quiz)
7	25 Oct	Flatworms to arthropods: blueprint for diversity [Mollusca to Arthropoda] (quiz)
8	1 Nov	Echinoderms and the ancestors of the vertebrates (quiz)
9	8 Nov	Vertebrate developments and distributions (quiz)
10	15 Nov	Biogeography of the caddisfly *Helicopsyche*
11	22 Nov	" " [continued] **[Report due Week of 29th Nov]**
12	29 Nov	T.B.A.

** N.B. All labs run for a full 3 hours of practical work. You must therefore have read through the appropriate lab outline <u>before</u> coming to each lab. Quizzes will be at the end of the lab.

For the laboratory portion of the **final exam**, you are expected to be familiar with organisms to at least the Phylum (and Class where applicable) level. You will be responsible also for biological details such as life cycles, habitats, and very general structural/functional information. Quizzes will be at the end of labs 3, 4, 6-9 inclusive; lab 5: Metallica exercise report due at the end of the lab.