SPRING 2011 SCI150 (SECTION 2): VERTEBRATE ZOOLOGY

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Lecture: 9:30-10:45 T/R; Sutton 113
Lab: 2-4, Monday Sutton 137
Required Texts:

Crain, D.A. 2010. Cades Cove Wildlife: A Visitor's Guide. Online Book at elearn.maryvillecollege.edu.
Rite in the Rain Weatherproof Field Notebook (available in bookstore at the register).

Suggested Text: Peterson, R.T. 2002. Peterson Field Guide, Birds of Eastern and Central North America

Natural Science 150: Principles in Scientific Investigation
These courses develop the skills and attitudes necessary to understand and use critically the scientific mode of inquiry to explore the physical world. Integrative sciences such as astronomy, geology, human ecology, pharmaceutical chemistry and zoology are presented to provide significant depth of study in both classroom and field/laboratory settings.

Sci150: Vertebrate Zoology
This specific Sci150 exposes students to the field of vertebrate zoology, emphasizing the methods used by scientists to study vertebrates and the principals that have resulted from the use of these scientific methods. Topics addressed include major themes in the study of Biology, characteristics of vertebrate taxa, and major fields of study in vertebrate zoology.

Date	Topic	Reading[1]	Lab
	BIOLOGY THEMES		
Jan 27	Introduction; What is Science?	Schwartz (2008). The importance of stupidity in scientific research. Journal of Cell Science 121: 1771.	Jan 31: Scientific methodology
Feb 1	The Land	*The Land* Dawkins (2003). What is True?	
Feb 3	Classification of species: Taxonomy	Campbell (2010) pgs. 285-289 *The Animals*	Feb 7: Evolution: Building phylogenetic trees
Feb 8	Vertebrate Evolution	Krough (2011) pgs. 292-297 Campbell (2010) pgs. 354-360	
Feb 10	Reproduction: "Love" among animals—Sexual and Asexual Reproduction	Wuethrich (1998)	Feb 14: Field Id[2]
Feb 15	Reproduction: "Love" among animals—Hormonal patterns	TBA	
Feb 17	***Exam 1: Biology Themes***		Feb 21: Field Id[2]

	VERTEBRATE TAXA		
Feb 22	Tetrapod Introduction and Anatomy: the Relationship Between Form and Function	Campbell (2009) pg. 414-415	
Feb 24	Fishes, Amphibians	*Amphibians*	Feb 28: Turtles
Mar 1	Reptiles	*Reptiles* *Viewing Wildlife*	
Mar3	Birds	*Birds*	Mar 7: Feathers
Mar 8	Birds	*Birds*	
Mar10	Mammals	*Mammals*	Mar 21: Field ID[2]
Mar 22	***Exam 2: Characteristics of Tetrapods***		
	AREAS OF STUDY		
Mar 24	Developmental Biology	Krough (2011) Ch. 32 *Black Bear* *Northern River Otter* *Southern Redback Salamander* *Wood Frog*	Mar 28: Field ID[2]
Mar 29	Anatomy & Physiology: homeostasis, thermoregulation, osmoregulation	Campbell (2009) Ch. 25	
Mar 31	Anatomy & Physiology: Digestion, circulation, respiration	Campbell (2009) Ch. 21	April 4: Enzyme Activity & Mozzarella Cheese
Apr 5	Anatomy & Physiology: The endocrine system	Campbell (2009) Ch. 26	
Apr 7	Toxicology—Endocrine Disruption	*Snapping Turtle;* Supplemented readings	April 11: Fish dissection
Apr 12	Toxicology--Neurotoxicology		
Apr 14	Animal Behaviors--Reproductive	*Wild Turkey* *Red-Winged Blackbird*	April 18: Field ID[2]
Apr 19	Animal Behaviors—Migration and Foraging; Conservation Biology	*Warbles, American Crow* *The Future*	
Apr 21	No class		April 25: Measuring animal behaviors: Ethograms[2]
Apr 26[3]	No class (due to trip at noon)		GSMNP[3]
Apr 28[3]	No class (due to trip at noon)		GSMNP[3]
May 3	***Exam 3: Vertebrate Topics***		
May 5	Final Exam Review & Bird ID Quiz		Final Exam Review
May 10, 9:00	**Cumulative Final Exam**		

[1]Unless otherwise noted, all readings are Chapters in the online book found on Tartan. Throughout the semester, supplemental readings will be assigned.

[2]On these days, we will be in the Maryville College Woods. Please dress for the weather.

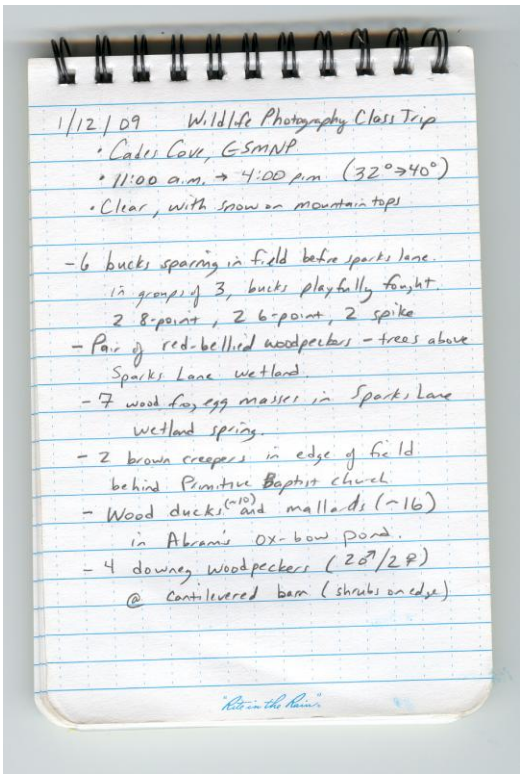
[3]On each of these days, half of the class will travel to the Great Smoky Mountains National Park. Trips will be from 12:00 to ~6:00 p.m. We will be off trail, so long pants and appropriate footwear are recommended.

Grading:
3 Exams @ 125 pts each….375
Final Exam @ 200 pts..…. 200
Laboratory…….....425
7 Results @35 points each (245 points)
Bird ID (50 points)
Field Notebook (80 points)
End-of-semester animal list (50 points)

While the knowledge learned from science and the vocabulary of science can be *taught* in the classroom, science can only be *performed* in the field or laboratory. For this reason, lab is 42.5% of your grade and attendance during all lab periods is required. Any unexcused absence from a laboratory will result in a 10% reduction in the course grade, and no credit for any results or field notebook sections for that period.

Results:
For the seven laboratories that are not in the field, a results section is due at the beginning of the following laboratory period. The results section should include both text (in paragraph form) and figures/tables if appropriate. While you make work on figures with your lab partner(s), each individual must turn in their own original results section. Assignments are turned in on the Tartan, under "Lessons," Assignments."

Field Notebooks:
You will have 6 "field" days during this course, the first five in the Maryville College Woods and the last to Cades Cove in the Great Smoky Mountains National Park. For each of these excursions, the following is the minimal information required in your notebook: time in field, weather, animals seen (species and number), and habitat used by the animals. For example:



End-of-Semester Animal List:
On May 5, you will turn in a list of all vertebrate animals seen during the semester. This should be organized into taxonomic groupings.