

## BIOL 303 – VERTEBRATE ZOOLOGY (Fall 2002)

**Instructor:** Dr. Richard D. Durtsche  
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Office Hours: M, W 4:00-5:30 pm

**Lectures:** 1:00 - 1:50 pm M, W  
Natural Sciences Center Room 302

**Laboratory:** 2:00 pm - 3:50 pm M, W  
Natural Sciences Center Room 164

### Textbooks

#### Lecture:

Linzey, D. 2001. Vertebrate Biology. McGraw Hill Co., New York.

#### Laboratory:

Conant, R., J. T. Collins and I. H. Conant. 1998. A Field Guide to Reptiles & Amphibians : Eastern and Central North America (Peterson Field Guides). Houghton Mifflin Co., Boston.

Page, L. M., B.M. Burr, and E. C. Beckham. 1998. A Field Guide to Freshwater Fishes : North American North of Mexico (Peterson Field Guides). Houghton Mifflin Co., Boston.

#### Optional Readings:

Eddy, S. and A. C. Hodson (Revised by J. C. Underhill, W. D. Schmid, and D. E. Gilbertson). 1982. Taxonomic Keys to the Common Animals of the North Central States. Burgess Publishing Co., Minneapolis, MN.

Peterson, R. T. 1998. A Field Guide to the Birds : A Completely New Guide to All the Birds of Eastern and Central North America (Peterson Field Guides). Houghton Mifflin Co., Boston.

Burt, W. H. and R. P. Grossenheider. 1998. A Field Guide to the Mammals : North America North of Mexico (Peterson Field Guides). Houghton Mifflin Co., Boston.

### Course Description

This course will help students identify and understand the diversity and evolutionary relationships of vertebrate groups. This will be an introduction to the natural history, evolution, systematics, physiology, and behavior of vertebrates, often times in their natural habitat. The vertebrate groups covered in this class include fish, amphibians, reptiles, birds, and mammals. You should gain a knowledge of how collect and identify these organisms both in the field and from preserved specimens in the laboratory. Moreover, you will learn how differences among vertebrates in their morphology, physiology, or behavior could have resulted in evolutionary change within the vertebrates.

### Grading Policy

Four exams will be given. Each exam will focus on the most recently covered sections of material (since the last exam), and the Final Exam (exam 4) will be comprehensive with a heavier weighting given to the questions from the material covered after exam 3. Exam questions are primarily derived from topics covered in lecture (unless otherwise indicated). Each exam will be announced at least one week prior to the exam date. Lecture exams will consist of some combination of short answer, matching, fill-in-the-blank, and essay questions. Also, all questions will come from lecture material and information in the textbook. Laboratory exams will be in the form of a lab practical with an accompanying short answer section. The practical section will primarily consist of species identification or functional significance of a structure. The short answer questions will focus on techniques learned, or interpretation of information from either the lab or the field. Finally, academic integrity is considered fundamental to the learning environment. There will also be two reading-discussion projects, four lab reports, and one research paper.

Extra Credit – 10 points extra credit can be gained by attending 2 biology seminars (5 pts ea.) this fall from either KAS talks (Nov. 7-9), Department Seminars, or CINSAM seminars.

The point values are as follow:

Lecture Exam 1	100 points	A	90-100%	900-1000 points
Lecture Exam 2	100 points	B	80-89%	800-899 points
Lecture Exam 3	100 points	C	70-79%	700-799 points
Lecture Exam 4 (Final)	150 points	D	60-69%	600-699 points
Laboratory Practical 1	150 points	F	0-59%	0-599 points
Laboratory Practical 2	150 points			
Reading-Discussion Projects (2@ 25 pts.)	50 points			
Lab Reports (4 @ 25 pts)	100 points			
<u>Research Paper</u>	<u>100 points</u>			
Lecture Total Points	1000 points			

### **Missed Examinations**

Missed exams must be taken within one week of the scheduled exam. If you miss an examination for medical reasons, please give the instructor a written statement to that effect signed by the attending physician. If you missed an examination for non-medical emergency, submit to the instructor the appropriate written documentation of the emergency. Make-up exams will be given in any format. **Excuses will be accepted only up to one week following the missed examination.**

### **Reading – Discussion Projects**

For each Discussion Project, a current topics paper will be assigned for everyone to read. Each student will write a 1-2 page summary of the paper to be handed in on the day of the discussion. The details of the summary report will be given in a handout later in the semester. On the day of the discussion, everyone will take an individual quiz over the material covered in the paper. Then, students will break out into groups to discuss the results and ideas of the paper while answering questions in a group quiz. We will end the project with a class discussion of the issues.

### **Research Paper**

The research paper will be in scientific format and will cover some aspect of the biology of a vertebrate of your choice. This paper will be 5 to 10 pages in length (no more, no less), double-spaced, word processed with no cover page, and a font size between 10 and 14. Twenty points of the 100 points for the paper will be for an outline of the paper format and a properly constructed Literature Cited section (minimum of 10 citations) that is due at 1:00 p.m., September 30. The completed paper is due at 1:00 p.m., November 6. A 10% score reduction will be deducted from your paper grade for every academic day the paper is late. There will be an option of rewriting the paper for grade improvement after you receive comments on the finished copy. The rewrite due date is 1:00 p.m., November 25. A handout will be given to cover the paper format.

### **Laboratory Reports**

There will be five laboratory exercises from which I will collect 4 written laboratory reports (25 pts ea). This means that you can either turn in five reports and take the best four grades or avoid writing one of the reports. Each report will be due the following week. Ten percent will be taken off for each day late. These reports are expected to be of the highest quality. Instructions of the format and style will be given as a handout.

### **Academic Dishonesty**

According to the Policies of the Department of Biological Sciences, the University Honor Code, and the Code of Student Rights and Responsibilities:

"The work you will do in this course is subject to the Student Honor Code. The Honor Code is a commitment to the highest degree of ethical integrity in academic conduct, a commitment that, individually and collectively, the students of Northern Kentucky University will not lie, cheat, or plagiarize to gain an academic advantage over fellow students or avoid academic requirements."

Any such acts or attempts to engage in such acts may result in penalties that range from grade penalties (including lowering a student's semester grade or failing a student for the course) to disciplinary action from the University's Honor Council (see the University Honor Code: <http://www.nku.edu/~deanstudents/HonorCode.htm>; and the Code of Student Rights and Responsibilities: <http://www.nku.edu/~deanstudents/Rights-Contents.htm>).

### **Attendance Policy**

I strongly encourage (but do not require) your attendance at lecture. Although your attendance record is not calculated into your overall course grade, students having several absences usually do not perform well on exams. If you miss a lecture, get the information from someone in class or see me. Attendance for laboratory sessions and group discussions is mandatory. Several of our labs will be field oriented and the information gathered may only be available during these outings. There will be one mandatory weekend field trip October 4 – 6. It would be in your best interest to make arrangements to allow participation in this weekend field trip, because the first lab practical exam will contain materials and information from this trip. Be aware that lab and lecture are not defined by the hours printed in the schedule. There will be days when we take lecture time to go into the field, and there will be times when I devote lab time to lecture.

### **Cell Phones and Beepers**

Please turn off all cell phones and beepers when coming to class. Better yet, leave them out of the classroom. This is a common courtesy folks. Classroom distractions such as this only disrupt the flow of learning and the delivery of subject information.

### **Tobacco Products**

No tobacco products of any type (cigarettes, snuff, chewing tobacco, etc.) are allowed in or during class.

### **A note for students with disabilities:**

If you have a disability that may prevent you from fully demonstrating your abilities, you are encouraged to contact the Services for Students with Disabilities Office (572-5180). Also, please contact me as soon as possible to discuss any accommodations that might be necessary to ensure your full participation and to facilitate your educational opportunities.

### **Important Dates**

Monday,	<b>Sept. 2</b>	- No Class, Labor Day Holiday
Friday,	<b>Sept. 6</b>	- last day to drop with no grade
Monday,	<b>Sept. 16</b>	- Lecture Exam 1
Monday,	<b>Sept. 30</b>	- Paper outline due with a Lit. Cited section (10 citations)
Fri - Sun,	<b>Oct. 4-6</b>	- Weekend Field Trip – Bernheim's Forest
Monday,	<b>Oct. 9</b>	- Laboratory Practical 1
Monday,	<b>Oct. 14</b>	- Fall Break
Wednesday,	<b>Oct. 23</b>	- Lecture Exam 2
Friday,	<b>Oct. 25</b>	- last day for withdrawal from the course with a W
Monday,	<b>Oct. 28</b>	- Group Discussion Reading -- Ectotherms
Wednesday,	<b>Nov. 6</b>	- Research Paper due
Thurs.- Sat.,	<b>Nov. 7-9</b>	- KAS meetings at NKU
Monday,	<b>Nov. 18</b>	- Lecture Exam 3
Monday	<b>Nov. 25</b>	- Research Paper Rewrite due
Wednesday,	<b>Nov. 25</b>	- Thanksgiving Break
Monday,	<b>Dec. 2</b>	- Group Discussion Reading -- Endotherms
Wednesday,	<b>Dec. 4</b>	- Laboratory Practical 2
Wednesday,	<b>Dec. 11</b>	- FINAL EXAM (Comprehensive) 1:00 – 3:00 pm

Remember, it is your responsibility to attend class, study, and fully understand the material presented in this course! An outline of topics to be covered is given below.

**NOTE:** This syllabus is subject to change at the discretion of the instructor.

## TENTATIVE LECTURE SCHEDULE

<b>PART</b>	<b>DATES</b>	<b>LECTURE</b>	<b>TEXTBOOK READING</b>
1	8/19 – 9/11	Introduction, Evolution, Vertebrate Diversity, and Species Interactions	Chapters 1-2, 12-13
1	9/16	EXAM 1	
2	9/18 – 10/21	Zoogeography & Movements Aquatic Vertebrates: Cartilaginous & Bony Fishes, and Tetrapod Origins	Chapters 3-5, 11
2	10/23	EXAM 2	
3	10/28 – 11/13	Terrestrial Ectotherms: Amphibians, Turtles, Crocodilians, and Squamates; Population Dynamics	Chapters 6-8, 10
3	10/28	Group Discussion Reading - Ectotherms	To be announced.
3	11/18	EXAM 3	
4	11/18 – 12/4	Terrestrial Endotherms: Birds and Mammals; Conservation & Extinction	Chapters 8-9, 15-16
4	12/2	Group Discussion Reading – Endotherms	To be announced.
5	12/11	FINAL EXAM (4) –comprehensive	

## TENTATIVE LABORATORY SCHEDULE

<b>WEEK</b>	<b>LABORATORY TOPIC/ FIELD TRIP</b>
8/19 – 8/21	Lab Intro / Systematics & Dichotomous Keys; Lower Chordates and Jawless Craniates
8/26 – 8/28	Fish Identification, Fish Collecting Field trip
9/2 – 9/4	LABOR DAY HOLIDAY (No Class Monday), Fish Ecology and Identification,
9/9 – 9/11	Field trip Newport Aquarium, Thermal Selection lab
9/16 – 9/18	Amphibian Identification and Natural History; Fish Collecting Field trip
9/23 – 9/25	Vertebrate Sensory Lab; Lecture; (Optional Night field trip to Cincinnati Nature Ctr –
9/30 – 10/2	Herp Collecting Field Trip, Fish Competition Lab
10/4-10/6	Weekend Field Trip: Bernheim's Arboretum and Research Forest
10/7 – 10/9	Amphibian and Reptile and Natural History; Laboratory Practical Exam 1
10/14 – 10/16	FALL BREAK (No Class Monday); Reptile Identification and Natural History
10/21 – 10/23	Field Trip --- Herps; Lecture
10/28 – 10/30	Reptile Identification and Natural History, Bird Identification - Structure and Function
11/4 – 11/6	Birding Field Trip, Foraging Ecology Lab
11/11 – 11/13	Bird Ecology, Mammal Identification and Natural History
11/18 – 11/20	Mammal ID and Natural History; Cincinnati Zoo Field Trip
11/25 – 11/27	Mammal ID and Natural History, Thanksgiving Break (No Class Wednesday)
12/2 - 12/4	Lecture/review; Laboratory Practical Exam 2