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Fall 9-1-2001

### BIOL 403.01: Vertebrate Design and Evolution

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**Vertebrate Design and Evolution**  
**Biology 403 Lecture Syllabus**  
**Professor Ken Dial ([kdial@selway.umt.edu](mailto:kdial@selway.umt.edu))**  
**Matt Bundle ([mbundle@selway.umt.edu](mailto:mbundle@selway.umt.edu))**  
**Fall 2001, MWF 1:00-2:00, HS 207**

|                            |  |
|----------------------------|--|
| Sept. 5,7                  | Selective processes of vertebrate design; phylogeny assignment<br>(Are birds dinosaurs?)   |
| Sept. 10,12,14             | Evolutionary history of vertebrate form; systematics   |
| Sept. 17,19,21             | Developmental anatomy; ontogeny and phylogeny<br>(Field Trip, Sunday 24 <sup>th</sup> , Bison Range)   |
| Sept. 24,26,28             | Skeletal anatomy; comparative form and function<br>(Experiment #1, Scaling of whole-body power-swan flight)  |
| Oct. 1, 3, 5               | Muscular anatomy; comparative form and function  |
| Oct. 8,10,12               | Muscle form and function cont.; Exam #1 (50 points);<br>(Experiment #2, Locomotor adaptations, chukar-lizard running)  |
| Oct.15,17,19               | The vertebrate nervous system: Coordination and integration  |
| Oct. 22,24,26              | Comparative locomotion, biomechanics and vertebrate design;<br>scaling. (Experiment #3, Feeding mechanics in trout)  |
| Oct. 29,31, Nov. 2         | Respiration and circulation<br>(Experiment #4, Energetics of movement in humans and birds)   |
| Nov. 5,7,9                 | Evolution of Feeding   |
| Nov. 12,14,16              | Exam #2 (50 points) Digestion<br>(Experimental #5: If necessary)   |
| Nov .19                    | (Thanksgiving Break) Osmoregulation and excretion  |
| Nov.26,28,30<br>Dec. 3,5,7 | Urogenital<br>Reproduction   |
| Dec.11,12,14               | Scaling: Isometry, allometry, and ecology  |
| Dec. 18                    | FINAL EXAM: 1:10-3:10 pm (100 points, comprehensive)<br>Textbook: Liem, Bemis, Walker, & Grange. <u>Functional Anatomy of the Vertebrates: An Evolutionary Perspective</u> |