



Lab Course Outline and Requirements – Fall Semester 2008

<p>Professor: Dr. T. E. Gillis</p>	<p>Office Hours: Online – CourseLink Blackboard (WebCT) IBIO F08 – IBIO*4220 Lab Studies in Ichthyology</p>
<p>Laboratory instructor: marie Thérèse Rush [SCIE 2502] Graduate Teaching Assistant: Rosario Castañón</p>	<p>Laboratories [SCIE2303]: Thurs Session 1: 2:30 pm – 5:20 pm Wed Session 2: 2:30 pm - 5:20 pm</p>

Synopsis: This course provides a practical experience in the study of fishes. Using University collections of prepared and preserved specimens, students will develop and apply skills in identification and sampling, explore relations between species diversity and habitat, and investigate, through guided study, the extent of anatomical, skeletal, reproductive and morphological variation and its functional and evolutionary causes.

Course Objectives

- This Course is intended to complement the new lecture course, IBIO*4200 Integrative Vertebrate Biology, and offer students a practical experience in laboratory Ichthyology.
- Students will develop meristic and mensural skills used to study the various aspects of fish biology.
- Through laboratory studies, students will apply methods of sampling fish diversity, and will relate diversity to habitat variables.
- Taxonomy exercises will allow students to become proficient in the use of dichotomous keys to assign fishes to taxonomic categories and North American specimens to Order, Family, and Species.
- Laboratory studies will allow students to develop a thorough understanding of fish anatomy, to explore variation in morphology among different groups of fishes and to test hypotheses regarding their function and evolution.
- Using class and individual data sets, students will hone their analytical-statistical skills as well as their writing skills.

NOTE: This outline is distributed for information and is available via CourseLink Blackboard (WebCT). Failure to obtain a copy of this outline in the first instance, or to read and respond accordingly to its contents, are not acceptable grounds for complaints after the first week of classes. In particular, no changes in the marking, grading or evaluation scheme will be made without the agreement of the professor, lab instructor and the written consent of all students enrolled in the course. There will be no unofficial deferments of any scheduled evaluation. Students who miss any evaluation for documented medical or other legitimate reasons will have their final grades pro-rated on the basis of completed evaluations. No make-up evaluations will be conducted during the semester. Students who miss laboratories for any reason are responsible for the material covered.

Content and schedule of study:

Date	Lab Session	Emphasis
Sept. 10, 11	Lab 1: Structural Diversity	<i>Character Diversity</i> *Variation in and interpretation of anatomical, morphological, behavioural, locomotory traits.
Sept. 17, 18	Lab 2: Anatomy & Osteology	
Sept. 24, 25	Lab 3: Comparative Osteology	
Oct. 1, 2	Lab 4: Swimming Behaviour	
Oct. 8, 9	Lab 5: Evaluation I	
Oct. 15, 16	Lab 6: Meristics & Morphometrics	<i>Taxonomy – Species Diversity</i> *Techniques used in fish identification *Use of Dichotomous Keys *Exposure to North American Freshwater Fishes *Exposure to North American Marine Fishes
Oct. 22, 23	Lab 7: Freshwater Fishes Identification Due Date for Lab Report #1	
Oct. 29, 30	Lab 8: Marine Fishes Identification	
Nov. 5, 6	Lab 9: Bar Coding	
Nov. 12, 13	Lab 10: Interpreting fossils	
Nov. 19, 20	Lab 11: Evaluation II	
Nov. 26, 27	Lab Report #2	Guided Studies – Lab Reports

Laboratories

Laboratory instructions are provided in "**Lab Studies in Ichthyology**", available in SCIE2502 prior to the first lab session. Additional information will be given in talks at the start of each laboratory period. Selected films and videos may be available in some laboratory classes. Students will be responsible for providing their own dissection instruments, rulers, pencils, and laboratory notebooks. Laboratory exercises will include demonstrations of specimens and techniques, various audiovisual materials, and regular experimental and/or instructional activities by students.

Lab Evaluations

The laboratory practical evaluations will be given during the regular laboratory session. They will be worth 30% and 40% of the final grade. The guided studies will constitute the remaining 30% of the final grade.

These evaluations will not tend to favour simple regurgitation of factual material, but a course of this nature must of necessity involve the assimilation of a considerable body of factual information.

Guided studies

Students will investigate and write-up two lab reports, 15% each.

Course Grades

		WEIGHT	Date
Lab Evaluation I	Character diversity	30%	Oct. 8, 9
Lab Evaluation II	Taxonomy	40%	Nov. 19, 20
Lab Reports	Guided studies	30%	Rep#1: Oct. 22, 23 Rep#2: Nov. 26, 27
Total Grade		100%	

Required textbooks

Noakes, D.L.G., E.K. Balon, T. Gillis & m. T. Rush. 2008. Lab Studies in Ichthyology. First Revised Edition. Department of Integrative Biology, College of Biological Science, University of Guelph, Guelph, Ontario, Canada. *This lab manual will be available in the lab. The price: \$20.00 cash.*

Nelson, J.S. 2006. Fishes of the World. 4th edition. John Wiley & Sons, Hoboken, New Jersey.
Or
Moyle & Cech An introduction to Ichthyology. 5th edition.

It is incumbent on the student to inform the instructors of the course within the first two weeks of class if there is a conflict between a student's religious observations (Holy Days) and a scheduled lab component, or lab evaluations.