UNIVERSITY OF SASKATCHEWAN

COURSE SYLLABUS

COURSE TITLE:	BIOL 451 Ichthyology		
COURSE CODE:	30523	TERM:	T2 2013/2014
COURSE CREDITS:	3.0	DELIVERY:	Lecture & Practicum (Lab)
CLASS SECTION:	02	START DATE:	January 6nd 2014
CLASS LOCATION:	rm 125 Biology Bldg	LAB LOCATION:	rm 307 Biology Bldg
CLASS TIME:	12.30 to 1.20 am (M, W, F)	LAB TIME (s):	130 am to 5.20 pm (M)
WEBSITE:	via Blackboard		

Course Description

Fish have become the most diverse vertebrates on earth inhabiting every continent, fresh and salt waters, temperate and tropical regions, hot and cold deserts. We examine the evolution of fish and discuss the physical and physiological adaptations permitting fish to occupy this diversity of habitats. In addition, we examine the exploitation/conservation/management of fishes through aquaculture and commercial fisheries.

Prerequisite(s): BIOL 121 and 224 (formerly BIOL 203) and BIOL 228 (formerly BIOL 253).
Note: BIOL 302 (formerly BIOL 401) is recommended.

Learning Outcomes
By the completion of this course, students will be expected to:

1) Understand fish phylogeny and the physical changes/adaptations that have led to fish being the most diverse vertebrates on earth.

2) Understand fish taxonomy. Be able to list unique/ identifying features of key taxonomic groups.

3) Develop a rudimentary knowledge of aquaculture: Be able to discuss types of aquaculture systems, management strategies/challenges, fish diseases.

4) Develop a rudimentary knowledge of fisheries management: Be able to discuss management approaches for commercial versus recreational fisheries.

5) Fish physiology. Be able to discuss fish physiology in relation to environmental adaptation.

6) Understand and be able to discuss different forms of fish behavior, why a particular behavior may have evolved and the benefits acquired though that behavior.

Note: The University of Saskatchewan Learning Charter is intended to define aspirations about the learning experience that the University aims to provide, and the roles to be played in realizing these aspirations by students, instructors and the institution. A copy of the Learning Charter can be found at: http://www.usask.ca/university_secretary/LearningCharter.pdf

More information on the Academic Courses Policy on course delivery, examinations and assessment of student learning can be found at:
http://www.usask.ca/university_secretary/council/academiccourses.php

Course Overview

This course is designed to introduce you to the vast and exciting field of biology, with a focus on biological diversity, evolution, adaptations of organisms to specific environments, and the evolutionary and ecological factors influencing changes in biodiversity over time and space.

Class Schedule

WEEK day	**Major Lecture topics**	**LAB TOPIC (see lab manual for details)**
1 Jan 5-10	Introduction: Why study fish?	NO LAB
2 Jan 12-16	Taxonomy/phylogeny of fish	LAB 1 – Introduction
3 Jan 19-23	Taxonomy/phylogeny of fish	LAB 2 - Fish Anatomy
4 Jan 26-31	Fishes of Saskatchewan/ Introduction to Aquaculture	LAB 3 - Buoyancy
5 Feb 3-7	Fisheries Management / Conservation	**LAB 4 – Mid-Term 1 (Lecture material only)**
6 Feb 10-14	Fisheries Management / Conservation	NO LAB
7 Feb 17-21	**Midterm Break**	**Midterm Break**
8 Feb 24-28	Careers in Fisheries Science / Fish Anatomy	LAB 5 – Fish Behavior
9 Mar 3-7	Fish Anatomy / Physiology	LAB 6 – Fish Identification
10 Mar 10-14	Fish Anatomy / Physiology	**LAB 7 – Mid-Term 2 (Lecture material only)**
11 Mar 17-21	Fish Anatomy / Physiology	LAB 8 - Diversity and Ecology
12 Mar 24-27	Fish Anatomy / Physiology	LAB 9 - Fisheries and Ecology
13 Mar 31-Apr 4	Fish Behavior	NO LAB
14 Apr 7-8	Review Lecture	NO LAB

Last day to withdraw from course without academic penalty is Saturday March 15th 2014.

Laboratory class information:

1. Labs begin in the week of JANUARY 12th. Students are expected to attend and be on time for all scheduled labs. The lab schedule is provided on the previous page of this document.
2. All lab assignments **must** be completed to receive credit for the course.

3. Any other questions regarding the lab should be directed to the laboratory instructor in Room 234.

Instructors

Contact Information:

Dr. Jeffery Sereda Instructor	Off Campus jeff.sereda@usask.ca	690-8255
Dr. Mike Pollock Instructor	108 Research Drive Michael.Pollock@wsask.ca	964-1556
Mr. Dale Jefferson Lab Coordinator	room 234 Biology Bldg dale.jefferson@usask.ca	966-1430

Required Resources

NONE

Recommended Resources

1. Major journals:

Aquaculture
Canadian Journal of Fisheries and Aquatic Sciences
Copeia
Environmental Biology of Fishes
Journal of Fish Biology
North American Journal of Fisheries Management
Transactions of the American Fisheries Society
Reviews in Fish Biology and Fisheries

2. Major reference books:

a. Identification and Biology of Canadian Fishes

Hart, J. L. 1973. Pacific Fishes of Canada. Fish. Res. Bd. Canada Bull. 180: 740 pp.

McPhail, J. D. & Lindsey C. C. 1970. Freshwater Fishes of North-Western Canada and Alaska. Fish. Res. Bd. Canada Bull. 173: 381 pp.

Scott, W. B. & Scott, M. G. 1988. Atlantic Fishes of Canada. Can. Bull. Fish. Aquat. Sci. 219: 731 pp.

b. Physiology, Behaviour and Ecology

Hoar, W. S. & Randall, D. J. (eds) 1969 to present. Fish Physiology, Vol. I – X+. Academic Press, N.Y. (Series of volumes containing reviews of selected topics in fish physiology and behaviour)

Pitcher, T. J. (ed) 1993. The Behaviour of Teleost Fishes. 2nd Edition Croom-Helm, Beckenham, Kent.

Wootton, R. J. 1990. Ecology of Teleost Fishes. Chapman & Hall, London.

c. Fisheries

Gulland, J. A. (ed) 1988. Fish Population Dynamics. 2nd Edition. John Wiley.

Lackey, R. T. & Neilsen, L. A. (eds) 1980. Fisheries Management. American Fisheries Society, Bethesda, Maryland.

Neilsen, L. A. & Jonhson, D. L. (eds) 1983. Fisheries Techniques. American Fisheries Society, Bethesda, Maryland.

Ross, M. R. 1997. Fisheries Conservation and Management. Prentice-Hall, Upper Saddle River, N. J.

Schrek, C. B. & Moyle P. B. 1990. Methods for Fish Biology. American Fisheries Society, Bethesda, Maryland.

Sigler, W. F. & Sigler, J. W. 1990. Recreational Fisheries: Management, Theory and Application. U. of Nevada Press, Reno.

d. **Fish Phylogeny**

Nelson, J. S. 1994. Fishes of the world. 3rd Edition, John Wiley & sons, N.Y.

e. Abstracts and Subject Indexes

Aquatic Sciences and Fisheries Abstracts

Cvancara, V. Current References in Fish Research. Dept. of Biology, U. of Winsconsin, Eau Claire, Winsconsin.

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Downloads

These will be available as appropriate through the course Blackboard. The only document that you are required to download and read is the course syllabus. **Please note that instructor's Powerpoint slides or lecture notes <u>may</u> be provided to you as a courtesy**. You are not required to download or print these slides/notes. While we will endeavour to have the lecture Powerpoint slides/notes posted sometime in advance of the lectures; however, we will not guarantee this. Each instructor will provide you with additional information about their downloads.

Grading Scheme

Midterm exam 1	25
Midterm exam 2	20
Final exam	40
Lab Assignments & quizzes	15
Total	100%

***Note all assignments and exams, including the final exam must be completed to receive credit for this course**

Evaluation Components

Midterm Exam 1:

Value: 25% of final course grade
Date: week of February 3rd (to be written during the lab period)
Length: 120 minutes
Format: Matching, Short Answer and Essay
Description: Based on lecture material prior to that date. Calculators and all other electronic devices are not allowed.

Midterm Exam 2:
Value: 20% of final course grade
Date: week of March 10th (to be written during the lab period)
Length: 120 minutes
Format: Short Answer and Essay
Description: Based on lecture material prior to that date. Calculators and all other electronic devices are not allowed.

Final Exam:
Value: 40% of final course grade
Date: Consult Final Exam Schedule
Length: 3 hours
Format: Short answer and essay
Description: The exam is comprehensive in that it will cover all lecture material. However, material delivered after the midterm exams will be emphasized. Calculators and all other electronic devices are not allowed.

Laboratory Assignments & Quizzes:

Value: 15% of final course grade
Date: Assignment schedule will be determined during lab introduction
Format: Written Assignments (experimental write up)
Description: Assignments will be written (formal experimental write up and essays). Additional information about the lab assignments will be provided during lab introduction and through contact with the lab instructor.

University of Saskatchewan Grading System

Students in BIOL 451 are reminded that the University has established a grading system to be used in all of its courses. Information on literal descriptors for grading at the University of Saskatchewan (reproduced below) can be found at:
http://students.usask.ca/current/academics/grades/grading-system.php

Scheduling of Exams

Students must bring their current University of Saskatchewan student card to all exams and be prepared to present it for verification purposes. Entry into certain campus buildings where exams may be held, also requires a valid student card.

It is forbidden for students to utilize in any way during an exam, any electronic device (e.g., cell phone, dictionary, palm pilot, translator, etc.). This includes calculators because these are not required for any exam.

Midterm and final examinations must be written on the date scheduled. Final examinations may be scheduled at any time during the examination period in December 2013; students should therefore avoid making prior travel, employment, or other commitments for this period.

In the event that a student is absent from the **midterm exam** through no fault of his/her own due to a medical emergency, death in the family, or other valid reasons, documentation must be provided explaining the absence, to assist in the determination of whether permission will be granted for the student to write a deferred mid-term exam. Students absent for the Mid-Term Lecture Exam **must advise their Instructor in person or by telephone (not by email) and initiate arrangements for writing a Deferred Mid-Term Exam, within 3 working days of the missed exam**, in order to avoid being assigned a grade of zero for the exam.

If a student is absent from the **final exam** through no fault of his or her own for medical or any other valid reason, **he/she must apply to the Dean's Office of the College in which he/she is registered for an opportunity to write a Deferred Final Exam**, **within 3 working days of the missed exam**. Documentation must also be provided to explain the absence from the final exam. Deferred exams may utilize a different format than the regular exam, at the sole discretion of the instructors.

Students are encouraged to review all examination policies and procedures:
http://www.usask.ca/calendar/exams&grades/examregs/

Student Feedback

Marks from exams are usually available within one week. Students will be encouraged to meet with the instructor to review their performance.

Attendance Expectations for Laboratory Classes

Students are expected to attend all scheduled lab periods. Students are advised to consult the lab instructor for further information about BIOL 451 procedures to follow when they are too ill to attend the lab period (and/or lab exam) or are facing extenuating personal circumstances.

Integrity Defined (from the Office of the University Secretary)

The University of Saskatchewan is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Student Conduct & Appeals section of the University Secretary Website and avoid any behavior that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

All students should read and be familiar with the Regulations on Academic Student Misconduct (http://www.usask.ca/university_secretary/honesty/StudentAcademicMisconduct.pdf) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (http://www.usask.ca/university_secretary/honesty/StudentNon-AcademicMisconduct2012.pdf)

For more information on what academic integrity means for students see the Student Conduct & Appeals section of the University Secretary Website at:
http://www.usask.ca/university_secretary/pdf/dishonesty_info_sheet.pdf

Examinations with Disability Services for Students (DSS)

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Disability Services for Students (DSS) if they have not already done so. Students who suspect they may have disabilities should contact DSS for advice and referrals. In order to access DSS programs and supports, students must follow DSS policy and procedures. For more information, check http://www.students.usask.ca/disability/, or contact DSS at 966-7273 or dss@usask.ca.

Students registered with DSS may request alternative arrangements for mid-term and final examinations. Students must arrange such accommodations through DSS by the stated deadlines. Instructors shall provide the examinations for students who are being accommodated by the deadlines established by DSS.

Prepared (December 6, 2013) by Dr. Jeff Sereda, Biol 451 Instructor