

**University of Guelph
College of Biological Science
Department of Integrative Biology**

COURSE OUTLINE

**IBIO*4100 – *Interpreting Biodiversity II*
Fall 2014**

Course description

Interpreting Biodiversity II is the second of two courses that explore global and local issues in biodiversity as a capstone experience for biodiversity majors (BIOD). The overall goal of the course is to provide opportunities for BIOD students to apply their knowledge and skills to complex problems and issues involving biodiversity in academic, government, or industry spheres. The pedagogical approach utilizes “active/experiential learning” and “student centred service learning” where students will engage in a key uncertainty in biodiversity with an external “client,” who has a need to resolve such issues. The client may be a private company, a government agency or municipality, a lab or institute on campus, or an NGO. Students will work independently and as a group with the guidance of a course instructor and a TA. Assignments will include authentic assessment of fieldwork, data collection, analysis of diversity data, an oral presentation and written research report. Faculty with relevant expertise for various parts of the project may participate as guest lecturers or faculty advisors. As a capstone experience for BIOD majors, the course will embrace a broad view of biodiversity that encompasses not only taxonomic diversity and abundance, but also ecological, evolutionary, and physiological aspects and the applications of research to biodiversity policy/legislation and commercialization. This course also provides opportunities for undergraduates and benefit from direct project involvement with the University of Guelph’s world class Biodiversity Institute of Ontario (BIO) and the Centre for Biodiversity Genomics (CBG).

Credit Weighting: 1.0

Prerequisites: IBIO 3100 (Enrolment restricted to BSCH:BIOD majors)

Teaching Team

Professor Dr Steven Newmaster, Office 208, Centre for Biodiversity Genomics (CBG), University of Guelph, x56002, e-mail: snewmast@uoguelph.ca

Course Schedule

Lecture TBA

Seminar/Labs TBA

Learning Outcomes

At the end of this course, students should be able to:

1. Describe, comprehend and evaluate issues in biodiversity within the context of the major concepts in biodiversity at various spatial (global/local) and temporal scales (historical/future predictions).
2. Identify variation in species at the research site through the use of biodiversity sampling methods and analysis of species data from the research project.
3. Describe the biodiversity of the study area at several scales and describe in detail the biodiversity of the taxon, area, or process on which their group focused.
4. Apply critical thinking, analysis, and independent inquiry skills to complex and interdisciplinary issues.
5. Critically contrast ideas within a team toward a common goal of solving a current biodiversity issue for an external client.
6. Synthesize knowledge and effectively communicate in both written and oral forms about a specific biodiversity issue for their client.
7. Evaluate key uncertainties and propose effective solutions for their client.

Skills:

The course has the following as primary goals with respect to the development of specific skills:

1. To develop a productive philosophy for learning.
2. To develop capabilities for independent study and research, including the use of library, primary literature, and online resources.
3. To develop the ability to critically assess and analyze issues in biodiversity.
4. To develop skills for interpreting biodiversity including expertise in specific taxonomic groups of interest and methods for measuring and analysing diversity.
5. To develop expertise for working in groups cooperatively and efficiently.
6. To develop effective communication skills (written and oral).
7. To develop a level of comfort with the complexity and uncertainty inherent in biological science.
8. To develop the ability to design a project that provides solutions for an external client who is dealing with a specific biodiversity issue.

Central Concepts:

I. UNDERSTANDING BIODIVERSITY: Describe, comprehend and evaluate issues in biodiversity within the context of the major concepts in biodiversity at various spatial and temporal scales.

II. ANALYZING BIODIVERSITY: Identify variation in species and perform biodiversity sampling methods and analysis utilizing data from real collections or surveys.

III. EVALUATING BIODIVERSITY: Evaluate key uncertainties and propose and effective solutions within a student centred service/experiential learning project. Describe the biodiversity of the study area at several scales and describe in detail the biodiversity of the taxon, area, or process on which their group focused. Apply critical thinking, analysis, and independent inquiry skills to complex and interdisciplinary issues. Synthesize knowledge and effectively communicate in both written and oral forms about a specific biodiversity issue to the client.

Format

The in-class interactions will focus on biodiversity issues that explore both skills and major concepts. The lab will emphasize skills development and small group interactions.

In-class Interactive Lectures (one 80 min. sessions/wk)

This course will not include lectures in the traditional sense. Instead, in-class interactions with the instructor and guest speakers will mainly function to guide students through the analysis of issues and concepts in biodiversity. These will be made as interactive as possible, using specimens and data as “learning objects” from current research projects that the guest speakers will present. Issues and concepts in biodiversity will be selected that involve complex biological problems, which allow for the exploration of key concepts in evolution, ecology, and organismal biology.

Seminar/Labs (1 – 3 hour session per week)

These Labs will address learning outcomes in both “Analyzing” and “Evaluating” biodiversity. Labs will include field and lab work that will represent a forum for student-directed discovery involving small group interaction with TAs and faculty. These will involve discussions of ideas and issues arising through group projects and critical evaluation of peer-reviewed research. They will also provide an engaging environment in which to carry out a group-based project (which will also involve interaction outside of the lab). Skills that will be developed on-line will be reinforced during the labs.

On-Line independent learning (weekly on-line assignments)

In addition to the lecture and lab components, students will engage in activities aimed at promoting self-assessment, skills development, background concepts and independent learning. These include the use of on-line tool such as D2L, Wiki, and concept mapping. Throughout the course, students will be encouraged to developing concept maps related to their project and the major learning outcomes* in the course. Concept mapping is a “learning object” that provides a mechanism of engagement in learner-centredness for complex learning outcomes making this an ideal tool of a senior course with many complex concepts.

Course Resources

Text Book: There is no required text, as we will be using articles from the scientific literature.

Undergraduate Calendar: The source of information about the University of Guelph’s procedures, policies and regulations, which apply to undergraduate programs. It can be found at: <http://www.uoguelph.ca/registrar/calendars/undergraduate/current/>

Assessment:

Assessment			Skills Addressed	Learning Outcome Addressed
Form of Assessment	Weight of Assessment (% of final)	Due Date of Assessment		
Data Collection	15	Oct. 6/2014	2, 4, 5, 6, 7, 8	2, 3,
Data Analysis and Interpretation	15	Oct. 31/2014	1-8	2, 3, 4
Authentic Assessment (Cumulative–Evaluating biodiversity scenarios)	15	Nov. 3/2014	3, 6, 7,	1, 4
Biodiversity Project Oral Presentation	25	Nov. 24/2014	1-8	1, 5, 6, 7
Biodiversity Project Written Report	30	Dec. 1/2014	1-8	1, 5, 6, 7

Course Policies**Important Dates**

Sept. 5	First day of class
Oct. 30	Course drop deadline (40 th day of classes)
Nov. 27	Thanksgiving Monday make-up day
Dec TBA	Final Exam

Course Late Policy

All Assignments are due in class by the end of the period unless consideration is agreed to in advance of the deadline by the instructor. Late Penalty is 10% for reports handed in between end of class and 11:59 PM on the date due. Late Penalty is 20% per part or whole of each additional 24 hr period from 12:01 AM of one to 11:59 PM of the next day, including weekends.

University Policies

E-mail Communication

As per university regulations, all students are required to check their <uoguelph.ca> e-mail account regularly: e-mail is the official route of communication between the University and its students.

Academic Consideration

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor in writing, with your name, id#, and e-mail contact.

See the academic calendar for information on regulations and procedures for Academic Consideration:

<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml>

Academic Misconduct

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community, faculty, staff, and students to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring.

University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection. Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy is detailed in the Undergraduate Calendar:

<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/>

Copies of out-of-class assignments

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

Accessibility

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact the Centre for Students with Disabilities as soon as possible.

For more information, contact CSD at 519-824-4120 ext. 56208 or email csd@uoguelph.ca or see the website: <http://www.uoguelph.ca/csd/>

Course Evaluation Information

CCS now provides the U of G Online Course Evaluation System in a secure, online environment. End of semester course and instructor evaluations provide students the opportunity to have their comments and opinions form part of the information used by Promotion and Tenure Committees in evaluating the faculty member's contributions in the area of teaching.

Course evaluations are now conducted through this web site. Login with your central email account login ID and password. https://courseeval.uoguelph.ca/CEVAL_LOGIN.php

Occasionally course evaluations are conducted in class.

Please Note:

Instructors do NOT receive evaluations until the end of exam period. Furthermore, evaluations are anonymous, unless you specifically indicate you want to acknowledge your comments

Drop date

The last date to drop one-semester courses, without academic penalty, is October 30, 2014.

For regulations and procedures for Dropping Courses, see the Academic Calendar:

<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/>

Recording of Materials

Presentations which are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a classmate or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

Resources

The Academic Calendars are the source of information about the University of Guelph's procedures, policies and regulations which apply to undergraduate, graduate and diploma programs:

<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/index.shtml>