# UNIVERSITY OF GUELPH
# COLLEGE OF BIOLOGICAL SCIENCE
# COURSE DESCRIPTION

| | |
|---|---|
| **Course number:** | IBIO*4500, IBIO*4510 |
| **Title of course:** | Research in Integrative Biology I, II |
| **Semester offered:** | Winter 2014 |
| **Department:** | Integrative Biology |
| **Course coordinator:** | Dr. Moira Ferguson |
| | SCIE 2480 |
| | By appointment, contact Monica McKay mjmckay@uoguelph.ca |
| **Scheduled classes:** | Wednesday, 19:00-21:50h, SCIE 3317 |
| | First class: 08 January. Introduction and background. |
| | Second class: 15 January. Oral presentation of research proposal. |
| | Mid-semester class: ***25, 26 February***. Oral presentation of progress report. |
| | Final oral presentations: ***01, 02, April***. |

**IMPORTANT INFORMATION ABOUT LAB AND/OR FIELD SAFETY:**

It is the student's responsibility to ensure that they participate in safety training and obtain safety instruction as required by the faculty advisor and as appropriate to the techniques and equipment to which they will be exposed (e.g., radiation safety, biosafety, first aid/CPR, autoclaves, centrifuges, electrophoresis, etc). Students conducting work in the laboratory or field must demonstrate that they have completed the online modules for CBS Health and Safety Training. Students will be contacted by email early in the semester and instructions on what to do will be provided at that time. Please note that the 3 online modules must be completed within 1 week of receiving the email message. This is a requirement of the course.

Advisors are required to provide a work-place specific Safety Orientation with project students and record it on the appropriate form. In addition, students whose research will be conducted under field conditions must, with the assistance of the faculty advisor who will sign it, fill out the Field Research Safety Plan and the Field Trip Waiver and Contact List.

**FORMS ARE DUE TO THE COURSE COORDINATOR AT THE SECOND CLASS MEETING ON 15 JANUARY.**

## THEMES

The student will undertake an independent research project of a practical or theoretical nature that relates either to ecology, evolutionary biology, comparative animal physiology or a related theme in biology or the teaching of these areas. The research will be conducted under the supervision of a faculty member in the Department of Integrative Biology.

The course offers students the opportunity to gain hands-on laboratory experience as well as a better appreciation of ways of engaging in scientific scholarship. The oral sessions will help develop the student's ability to communicate the rationale and relevance of the project and to clearly explain the approach taken. Written skills will be developed in the research proposal and final project report.

**NOTE:** Limitations of departmental resources may restrict entry into this course.

## COURSE RESOURCES

**Highly recommended text:** *Lee, J.A. 2000. The Scientific Endeavor. A Primer on Scientific Principles and Practice. Addison Wesley Longman Inc, San Francisco.*

**D2L course site:** Materials relevant to the course will be posted on the D2L course site. In addition, some written assignments and powerpoint files for oral presentations will be submitted via the D2L dropbox. Others will be submitted by email to the course coordinator, advisor and second reader. Details will be provided as the deadlines approach.

**Academic Calendar:** The calendar is 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/index.cfm?index

## PROCEDURES

Enrollment is open to students in semesters 7 and 8 who have successfully completed a minimum of twelve (12) science credits. A **minimum cumulative average of 70% in biology courses** taken during the first 6 semesters of a major in the College of Biological Science is normally required. Students should make arrangements with a faculty advisor and the course coordinator at least one semester in advance.

**The project advisor must be a faculty member in the Department of Integrative Biology. The second reader must also be a faculty member, but may be from another department. Faculty who will be on leave in W2014 may not serve as advisors or second readers.**

**Students taking the research project course will:**

[1] **attend a first class meeting** to review course procedures and review proposal requirements;
[2] **attend a second class meeting** to present oral proposals;
[3] **submit the project approval form**, including a one-page summary of the proposed research, no later than the second class meeting;
[4] **complete the CBS safety modules** prior to commencing research;
[5] **submit completed forms** for safety orientation and field work by the second class meeting;
[6] **submit a full written research proposal** to be graded and judged for the Bryant Family Research Scholarship;
[7] **attend a mid-semester meeting** to present a brief oral progress report;
[8] **present final research results** as an oral presentation;
[9] **submit a final report** to advisors and second readers;

**Advisors and second readers must have all grades to the course coordinator by the due date (see Evaluation Table). Students are advised to remind their advisors and second readers about this deadline.**

Students enrolling in a research project for the first time will use course number IBIO*4500. IBIO*4510 is reserved for students taking additional credits through a research topics course.

Students whose research involves live, non-human vertebrates must comply with the Animals for Research Act of Ontario and University Animal Care Policies. Before proceeding with such research, permission must be obtained from the University Animal Care Committee by completing and returning the Animal Utilization Protocol form available from the Department of Integrative Biology office. Students whose research involves human subjects must consult the Research Ethics website at http://www.uoguelph.ca/research/humanParticipants/index.shtml and fill out an application form available at http://www.uoguelph.ca/research/forms/index.shtml.

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

**Drop Date:** The last date to drop one-semester courses, without academic penalty, for Winter 2014 is March 7, 2014. For regulations and procedures for Dropping Courses, see the Undergraduate Calendar: http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml

**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

**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.

## ROLES AND RESPONSIBILITIES

**It is the responsibility of the student to:**

- **find a thesis supervisor and second reader**. There is no list of potential advisors. Prospective students are encouraged to gauge their areas of research interest, survey departmental web sites highlighting the research interests of faculty, and approach faculty possessing similar interests. A second reader for the final project report can be selected in consultation with the advisor.

- **familiarize themselves and their advisor with the procedures and the roles and responsibilities of the course.** The student should consult with their advisor and the course coordinator on all aspects of the course, including the guidelines and requirements for the research proposal, the oral progress report, and the written final report. Each student is strongly encouraged to meet with their advisor before or at the beginning of the course to review the procedures and the roles and responsibilities, and to discuss expectations in light of the evaluation components of the course. If conflicts arise between the student and the advisor, the student has the **responsibility and right** to ask the course coordinator to intervene.

- **keep their advisor and the course coordinator informed of their progress during the semester**. The student is expected to (i) monitor their day-to-day research progress, (ii) keep their advisor and the course coordinator aware of any concerns that are important to the success of the proposed research, and (iii) rely on their advisor for guidance on how to troubleshoot any challenges that may arise during the research.

**It is the responsibility of the advisor to:**

- **ensure the student is clear about what is expected from them on a week-to-week basis over the duration of the project, and ensure that their expectations are consistent with the contents of the course description**. To be eligible to take on a project student, advisors cannot be away from campus for an extended period of time (e.g. on research/study or parental leave). A minimum of 30 minutes of contact time per week, on average, is recommended. It is the advisor's role to offer advice and support to the student as challenges arise with the project, and to communicate and reinforce their expectations regarding the conduct of the student in the lab or field. As appropriate to the discipline and research project, the advisor will provide protocols used to track research progress, set up experiments, and collect, enter, validate, and analyze data.

- **ensure the student is supported adequately and appropriately to complete their research successfully**. Depending on the project, this preparation could include (i) providing specialized training (e.g. electrofishing), (ii) ensuring access to key rooms, equipment, literature, or data, and (iii) overseeing the acquisition of approval from the Animal Care or Research Ethics Committees.

- **ensure the student is working safely in the lab or field**. Project students are required to take the three CBS safety training modules. In addition, advisors are required to review the Safety Orientation Checklist with the student. Students working in the field must also submit the Field Research Safety Plan and the Field Trip Waiver and Contact List forms.

- **ensure the student appropriately balances their time between planning, data collection, and write-up**. Laboratory work and data collection should cease by mid-March to provide students adequate time to analyze their data, write an initial draft, solicit feedback from the advisor, and revise the final report prior to submission.

**It is the responsibility of the course coordinator to:**

- **ensure students are familiar with the organization of the course.** This includes organizing initial classes to review the course's organization, evaluation requirements and methods of assessment, key forms, and the schedule of important dates. It will also include scheduling of the mini-symposia of class presentations.

- **ensure students have a secondary source of advice and guidance**. This can include advising the class on how to communicate effectively with their advisors, or providing individual counseling in the event of problems that cannot be solved between a student and their advisor.

- **ensure students are assessed with similar rigor across advisors**. The course coordinator will act as a contact for the advisors regarding course requirements and evaluation.

## EVALUATION

| Course component | Weight | Due Date | Submit Mark [7] |
|---|---|---|---|
| One-page research summary | --- | 15 Jan[5] | --- |
| Oral research proposal presentation | ---[1] | 15 Jan | --- |
| Research proposal, evaluated by course coordinator | 15%[2] | 12:00h 27 Jan[6] | --- |
| Oral research progress report, evaluated by coordinator | 10% | 25, 26 Feb. | --- |
| Final presentation, evaluated by course coordinator | 15% | 01, 02, April | |
| Research effort, evaluated by advisor | 20%[3] | --- | 17 April |
| Final written report, evaluated by advisor and reader | 40%[4] | 12:00h 07 April | 17 April |

1. Students who fail to give an oral presentation on Jan. 15 will be **penalized 10% of the total marks for Research Effort** unless Academic Consideration for illness or other compassionate grounds has been approved by the course coordinator.

2. See instructions on attached pages regarding the **Bryant Family Research Scholarship** for the best proposal in the Research in Integrative Biology courses.

3. The requirements and the breakdown for this portion of the mark are to be agreed upon by the student and advisor, and recorded on the Project Approval form.

4. The grade for the final written report will be an average of the grades submitted by the advisor and the second reader. The report is to be submitted in the form of a publication-ready manuscript. The specific journal and style is to be agreed upon by the student and advisor at the beginning of the semester and recorded on the Project Approval form.

5. The summary must be submitted along with the Project Approval form at the second class meeting.

6. Completed forms for safety orientation and field work (Safety Orientation and Training records, Field Research Safety Plan, Field Trip Waiver and Contact List) are also due on 27 January.

7. Students are strongly advised to remind their advisors and second readers about deadlines for submitting course marks to the course coordinator.

## POLICY ON LATE OR MISSED COURSE REQUIREMENTS

Students who are unable to meet a course deadline for a graded component because of illness or compassionate reasons must request Academic Consideration as soon as possible by advising the course coordinator in writing, with their name, id#, and email contact. If approved, alternate deadlines will be arranged.

Deadlines for submission of written assignments that are evaluated by the advisor and second reader **cannot be altered by the advisor**. Written assignments that are submitted after the deadlines indicated in the Evaluation Table **will not be accepted** unless Academic Consideration for illness or other compassionate grounds has been approved by the course coordinator.

Students who fail to give an oral presentation on Jan. 15 will be **penalized 10% of the total marks for Research Effort** unless Academic Consideration for illness or other compassionate grounds has been approved by the course coordinator.

See the undergraduate calendar for further information on regulations and procedures for Academic Co
nsideration: 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 have 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/c08/c08-amisconduct.shtml

# Bryant Proposal
# The Bryant Family Research Scholarship for
# Best Proposal for an Undergraduate Research Project

**BACKGROUND, PROCEDURES AND CRITERIA FOR JUDGING RESEARCH PROPOSALS**

## Background

The purpose of the scholarship is to encourage excellence in undergraduate research. Excellence begins with careful consideration of the research question, hypothesis and study design, that is, the proposal.

## Procedures

1. Students are required to submit a **one-page outline** of their research plan at the **second** class meeting, as per the course procedures. This one page document must contain the following sections: Title, background, hypothesis posed or question asked, methods, references.
2. Incorporating feedback from the course coordinator on the one-page research summary description and the initial oral presentation, and following the instructions below, the student will write a project proposal to be considered for the **Bryant Family Research Scholarship.** An important incentive to write a sound proposal is that, for any well thought-out research plan, the Introduction and Methods (barring major changes of plan) will largely be those that should also appear in the final written report. Thus, the student will initiate writing significant components of the report early in the course.
3. The proposal will contain an **abstract** (maximum 250 words).
4. **Format of the proposal:** The first page of the proposal will provide the title of the project, the names of the student, advisor and second reader, and the abstract.

   The body of the proposal will include:
   - literature review and context
   - statement of research hypothesis or question
   - proposed methods
   - anticipated results and statement of significance
   - references
   - timetable
   - tables, figures and appendices (if any)
   - The body of the proposal will be limited to **5 pages of text**, 1.5-spacing, in 12-point Arial font with 2 cm margins. The title page, references, timetable, tables, figures, and appendices are **NOT** included in these 5 pages. ***NOTE:*** *Students enrolled in IBIO*4510 and continuing with the same research project as in IBIO*4500 should include a progress report section of 1 page of text maximum.*

5. A rubric for the evaluation of the proposal is provided on the following page.
6. Students will be eligible to receive the Bryant award once per academic year. All students who are enrolled in IBIO*4500 and IBIO*4510 in both the Fall 2013 and Winter 2014 semesters will be evaluated for the award.

continued.....

## Judging Criteria

**Rating Scale:** 1-2 unacceptable; 3-4 below average; 5-6 fair; 7-8 good; 9-10 outstanding.

**ABSTRACT (MAXIMUM 250 WORDS):____/10**

Does the abstract contain all essential elements, which, in a sentence or two, are the answers to each of:
[1] WHY the research will be undertaken;
[2] WHEN and WHERE will it be done;
[3] HOW it will be done;
[4] WHAT results are expected;
[5] SO WHAT it will all mean with respect to [1].

**CONTEXT AND STATEMENT OF GOALS ____/10**

Is the background and literature review broad and adequate?
Does the proposal describe one or more novel research hypotheses?
Is the origin of the hypothesis clear?
Is the hypothesis or question a logical outgrowth of uncertainty in current knowledge?
Does the study address general principles and/or is “large” in scope, or narrowly focused on issues of local or specific concern?
Does the proposal describe an attempt to confirm conventional wisdom?
Does the proposed research replicate what has already been done and, if so, why?
Are clear predictions derived from the hypothesis?

**METHODOLOGY: ____/10**

Does the proposed research reflect careful planning?
Will appropriate variables be measured and is the experimental design sound?
Do critical assumptions appear to have been overlooked?
Does it appear that appropriate statistics will be used for the analyses?
Does the study promise to be thorough and self-contained, or will critical questions remain and conclusions be ambiguous?

**PRESENTATION:____/10**

Is the proposal clear, concise, complete?
Is correct English used?
Are arguments well-articulated?
Are figures and tables properly labeled and explained?
Are all figures and tables cited in the text?
Do references cited in the text match those listed in the reference section?

**TOTAL: ____/40**

It is highly recommended to consult Chapters 1-3 and Appendix 3 in the recommended course text, Lee, J.A. 2000. The Scientific Endeavor. A Primer on Scientific Principles and Practice. Addison Wesley Longman, San Francisco

# College of Biological Science

## SAFETY ORIENTATION RECORD: PART A

**PROCEDURE:** *This form must be completed by all individuals working in laboratories (i.e., employees, students, visiting scientists, volunteers engaged in research, and teaching assistants). Orientation activities may be delegated to a qualified individual, however, the supervisor is ultimately responsible for training and must ensure that this form is completed, signed, and submitted to departmental administrative assistant* ***within the first week of work****. A second copy of the record is to be stored in the lab "Safety Binder" and must be housed in a visible location in the lab.*

| | |
|---|---|
| ***Personnel Name:*** | |
| ***ID:*** | |
| ***Email Address:*** | |
| ***Supervisor Name:*** | |
| ***Position and Start Date:*** | |

## SAFETY TRAINING:

**Lab Personnel:** I am responsible to complete the safety training courses required by CBS/EHS:

- ☐ WHMIS
- ☐ Biosafety
- ☐ Laboratory Safety

## WORKSPACE ORIENTATION AND SAFETY EXPECTATIONS:

**Lab Personnel:**

- ☐ I have reviewed the emergency response procedures posted in the lab
- ☐ I understand the location and use of emergency equipment
- ☐ I understand the actual and potential hazards in the work area
- ☐ I have reviewed and understand the information contained in the CBS Safety Handbook
- ☐ I understand the process for separating and disposing of hazardous wastes
- ☐ I have reviewed the EHS Policy 851.01.01 http://www.uoguelph.ca/ehs/ and know where to locate the Occupational Health & Safety Act (OHSA)
- ☐ I am aware of the location of lab-specific safety procedures, and am aware that I am required to follow these safety procedures at all times
- ☐ I understand that I am to call 2000 during emergencies
- ☐ I understand how to contact:
  - Campus Police (non-emergencies) ext. 52245
  - Environmental Health and Safety: ext. 53282
  - Departmental Safety Committee
  - CBS website: www.cbs.uoguelph.ca/safety/
- ☐ I am aware of basic lab safety rules (no food/drink, proper attire, personal protective equipment, no door propping, good housekeeping)

**Supervisor (or designate):**

- ☐ I have ensured that emergency response procedures are posted in the lab
- ☐ I have shown the individual the location of:
  - Emergency exits and alarm pull stations
  - Phones and emergency call boxes
  - Emergency equipment (first aid kit, spill kit, eyewash, safety shower, fire extinguisher, other as needed)
- ☐ I have advised the individual of actual and potential hazards in the work area and the appropriate precautions (may include: chemical, biological, radiation, electrical, noise, machine, temperature extremes). I have discussed lab-specific standard operating procedures and have ensured that written procedures are available in a well marked location in the laboratory. I have explained the process for separating and disposing of hazardous wastes
- ☐ I have explained the requirements of proper attire and personal protective equipment.
- ☐ I have explained safety precautions for work after hours (hazard assessment, buddy system, access control, SafeWalk, notification of Campus Police)
- ☐ I have ensured that contact information for Emergency Dispatch is posted in the lab
- ☐ I have provided access to contact information for other health and safety resources

| | |
|---|---|
| ***Lab Personnel Signature:*** | ***Date:*** |
| ***Supervisor Signature:*** | ***Date:*** |

# College of Biological Science

## ONGOING SAFETY TRAINING RECORD: PART B

**PROCEDURE:** *This form must be completed for all individuals working in laboratories (i.e., employees, students, visiting scientists, volunteers engaged in research, and teaching assistants). The safety training record is to be updated on an ongoing basis as new training is provided. Training activities may be delegated to a qualified individual, however, the supervisor ultimately is responsible and must ensure that this record is updated. The form must be filed in a binder marked "Safety" and housed in a visible location in the lab.*

| | |
|---|---|
| ***Personnel Name:*** | |
| ***ID Number:*** | |
| ***Email Address:*** | |
| ***Supervisor Name:*** | |
| ***Position and Start Date:*** | |

## SAFETY TRAINING:

**Supervisor (or designate):** I have specified the required training as indicated by checking the appropriate boxes below:

| | **Supervisor Initials/Date** | **Lab Personnel Initials/Date Complete** |
|---|---|---|
| ☐ WHMIS | _____ | _____ |
| ☐ Biosafety | _____ | _____ |
| ☐ Laboratory Safety | _____ | _____ |
| ☐ First Aid / CPR | _____ | _____ |
| ☐ Radiation Safety | _____ | _____ |
| ☐ Transportation of Dangerous Goods | _____ | _____ |
| ☐ Animal Care | _____ | _____ |
| ☐ Other _____ | _____ | _____ |

## EQUIPMENT TRAINING:

**Lab Personnel:** I have completed training on the equipment specified by my supervisor, as indicated below:

Both the supervisor and lab personnel are to initial and date upon completion of training on each piece of equipment.

| **Equipment** | **Supervisor Initials/Date** | **Lab Personnel Initials/Date Completed** |
|---|---|---|
| ☐ Autoclave | _____ | _____ |
| ☐ Centrifuge | _____ | _____ |
| ☐ Compressed Gas | _____ | _____ |
| ☐ Electrophoresis | _____ | _____ |
| ☐ French Press | _____ | _____ |
| ☐ Laminar Flow Hood | _____ | _____ |
| ☐ Liquid Nitrogen | _____ | _____ |
| ☐ Microscopes | _____ | _____ |
| ☐ Microtome | _____ | _____ |
| ☐ Shaker | _____ | _____ |
| ☐ Other _____ | _____ | _____ |
| ☐ Other _____ | _____ | _____ |

## FIELD SAFETY (as applicable):

**Lab Personnel:**

- I am aware of the hazards associated with the field work I will be performing and understand the precautionary measures in place to protect my safety
- I have reviewed the field work safety plan

**Initials and Date:** _____

**Supervisor (or designate):**

- I have completed a relevant field work safety plan and have reviewed it with the individual
- I have ensured that the individual has provided the department with emergency contact information

**Initials and Date:** _____

# IBIO*4500/4510
# Approval to Register - Winter 2014

IBIO*4500/4510 is a one semester 0.75-credit undergraduate project course in which students conduct independent research under the supervision of a faculty member. The courses are offered in both the Fall and Winter semesters. Students will register for IBIO*4500 the first time they take a research project course. IBIO*4510 is used by students who wish to continue their project from a previous semester, or undertake a new project under the supervision of another faculty member.

Enrollment is open to students in semesters 7 and 8 who have successfully completed a minimum of twelve (12) science credits. A **minimum cumulative average of 70% in biology courses** taken during the first 6 semesters of a major in the College of Biological Science is normally required. Students should make arrangements with a faculty advisor and the course coordinator at least one semester in advance.

To obtain approval to register for IBIO 4500/4510, complete this form and obtain the signature of the faculty member who has agreed to act as your Advisor.

**Note:** The advisor must be a faculty member in IBIO.
The second reader must also be a faculty member but may be from another department.
**Faculty who will be on leave during Winter 2014 may not act as advisors or second readers.**

Submit this and a Course Waiver Request form to the course coordinator, Dr. Moira Ferguson, SCIE 2480. Ideally, this will occur during the course selection period in the preceding semester.

Student Name _____ ID# _____

Cumulative average (%) in biology courses _____

I acknowledge that this course requires a commitment of at least 15 hours per week, and that I have discussed the expectations of the project course with my faculty advisor.

Student's Signature _____

I have discussed my expectations with the student regarding the research project and the level of commitment required to be successful in this course. I am aware of the student's academic performance in biology courses and background preparation in the proposed area of research. If these do not meet the minimum requirements normally expected of students enrolled in this course, I have discussed this with the student. Based on this discussion, I agree to serve as the Advisor for the student's undergraduate research in Integrative Biology.

Advisor's Name please print _____

Advisor's Signature _____

# IBIO*4500/4510
# Project Approval Form

This form must be submitted to the course coordinator (Dr. Moira Ferguson)
in class on **15 January, 2014**.

**Course Evaluation** (see course outline for further detail)

| Evaluation | Value (%) |
|---|---|
| Research proposal | 15 |
| Oral Progress Report | 10 |
| Lab/field/analytical effort | 20 |
| Final Oral presentation | 15 |
| Final written report | 40 |

| | | | |
|---|---|---|---|
| Student | | | |
| Student ID# | | Email | |
| Signature | | | |
| Project Advisor* | | Signature | |
| Second Reader** | | Signature | |
| Course Coordinator | Dr. Moira Ferguson | Signature | |
| Project Title | | | |
| Journal Format | | | |
| Criteria for research effort | | | |

* must be a faculty member in IBIO and not on leave in W2014
** must be a faculty member and not on leave in W2014, but may be in another department

- If the project involves live vertebrates, approval from the Animal Care Committee (ACC) is required.
- If the project involves humans, approval from the Research Ethics Committee (REC) is required.
- CBS safety training is required and the Saftey Checklist must be reviewed.

| Requirement | yes/no/NA |
|---|---|
| ACC approval obtained | |
| REC approval obtained | |
| Safety Orientation completed | |

**Attach a one page typewritten summary of the project proposal that provides the rationale and methods for the project.**

# Department of Integrative Biology Field Research Safety Form

To be submitted to the IB Department Chair for approval prior to entering the field.
Refer to University of Guelph Safety Policy 851.06.04 for additional details.

Office use only

**Principal Investigator:** _____ Contact #: _____

Time Period (annual renewal): _____ (dd/mm/yyyy) to _____ (dd/mm/yyyy)

Number of people in the working group: _____

Is the number appropriate for this particular field situation? ☐Yes ☐No

**Field Expedition Leader:** _____

- Names and contact information for all participants are to be entered in Appendix A

**Location of Activity:**

| |
|---|
| |
| |

**Brief Description of Research Activity:**

| |
|---|
| |
| |
| |

**Communication and Emergency Response**

What communication equipment will the field team have access to?

☐Cell phone (#_____) ☐Satellite phone (#_____) ☐Local hard line (#_____) ☐Radio ☐Locator beacon

What is the contact number for local emergency response/medical evacuation? (#_____)
First aid kit available? ☐Yes ☐No
Number of personnel trained in first aid ___

How frequently will there be communication with the field team?

☐Daily
☐Weekly
☐Monthly
☐Other (_____)

☐Field research team to contact Principal Investigator
**OR**
☐Principal Investigator to contact Field research team

**Possible Hazards - Indicate concerns relevant to your group:**

| *Hazard* | *Applies?* | *Suggested Precautions* | *Other Precautions* |
|---|---|---|---|
| **Communicable Disease** | ☐Yes ☐No | ☐Review regional travel advisories<br>☐Ensure appropriate vaccinations<br>☐Ensure appropriate prophylactic medication<br>☐Insect controls (netting, repellent) | |
| **Health Conditions**<br>E.g., Allergies, diabetes, conditions requiring medication | ☐Yes ☐No | ☐Encourage participants bring adequate supply of required medication | |
| **Predatory Animals** | ☐Yes ☐No | ☐Research habitat/behavior<br>☐Pepper spray<br>☐Firearms | |
| **Firearms/Weapons**<br>(type: _____) | ☐Yes ☐No | ☐Firearm license (PAL) issued to person carrying firearm<br>☐Training on safe use | |
| **Venomous Animals/Plants** | ☐Yes ☐No | ☐Research habitat/behavior<br>☐Antidotes (if available) | |

| | | | |
|---|---|---|---|
| **Work at Height**<br>*Fall protection is required at heights >3m* | ☐Yes<br>☐No | ☐Training on ladder safety<br>☐Climbing equipment (& training) | |
| **Boating** | ☐Yes<br>☐No | ☐Valid license<br>☐Required equipment (see below) | |
| **Electroshocking**<br>☐Back-pack<br>☐Generator | ☐Yes<br>☐No | ☐Non-conducting boat hull (if applicable)<br>☐CPR trained personnel<br>☐Rubber boots & gloves | |
| **Marine/Aquatic** | ☐Yes<br>☐No | ☐Research local tides/currents<br>☐Chest waders<br>☐Safety/throw line<br>☐Life jacket/flotation device | |
| **Vehicles**<br>☐Cars/Trucks<br>☐ATVs<br>☐Snowmobiles<br>☐Tractors | ☐Yes<br>☐No | ☐Valid license(s)<br>☐Driver Information Profile complete<br>☐Adequate insurance coverage<br>☐Training on safe operation of equipment<br>☐Car/truck checked for spare tire & jack | |
| **Political/Civil Unrest** | ☐Yes<br>☐No | ☐Local guides/security<br>☐Research local Travel Warnings (www.voyage.gc.ca)<br>☐Obtain contact numbers for Embassy/Consulate/Trade Office | |
| **Extreme Environmental Conditions**<br>- arctic<br>- desert<br>- remote locations | ☐Yes<br>☐No | ☐Survival skills training<br>☐Wilderness first aid<br>☐Locator beacon<br>☐GPS | |
| **Hazardous Materials**<br>☐Radioisotopes<br>☐Compressed Gas<br>☐Explosives<br>☐Biological<br>☐Chemical/other haz materials | ☐Yes<br>☐No | ☐WHMIS Training<br>☐TDG Certification<br>☐Personal Protective Equipment<br>☐Biosafety/Radiation permits issued (if applicable) | |

**Is a boat being used?** ☐Yes ☐No
**Name of operator card holder:** _____

*Please check if boat is equipped with the following:*

| | | | | |
|---|---|---|---|---|
| ☐Bailing bucket† | ☐Fire extinguisher† | ☐Life jackets† | ☐Flashlight/flares† | ☐Air horn/whistle† |
| ☐Radio | ☐Drinking water | ☐Oars or anchor/line† | ☐15m buoyant rope† | ☐First aid kit |
| | | ☐Compass & charts | ☐Knife | ☐Spare gas tanks |

† *Required equipment for powered pleasure craft – refer to www.tc.gc.ca/marinesafety for more details*

**Will personnel be camping in the field?** ☐Yes ☐No
*Recommended Equipment:*

| | | |
|---|---|---|
| ☐Tent | ☐Potable water | ☐Stove/cookware/utensils |
| ☐Adequate sleeping bags | ☐Provisions - food, fuel, etc | ☐Equipment – lantern, flashlight, etc |

**The above information is accurate and I understand the safety concerns involved in this project.**
**Signature of Professor: _____**

**This form must be sent to the Chair of the Department of Integrative Biology for approval.**
**Signature of Chair of IB: _____**

- *Principal Investigator keeps a copy*
- *Department keeps a copy*
- *Department sends completed form, minus Appendices, to Risk & Insurance Manager (5th Fl. UC) as per 851.06.04.*

## Appendix A – Field Research Participant Contact Information

| *Participant Name* | *Participant Contact Number (cell/home)* | *Name & Contact Number for Next of Kin* |
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