



a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

BSG
3rd yr
SP8 86=9

APR 18 2017
Office of the Dean
Irving K. Barber School of Arts and Sciences
Associate Dean: ASC 413
Fax: (250) 807-8001
bsasdeansoffice.ubco@ubc.ca

HONOURS THESIS APPLICATION

Print Form

PART A: To be completed by Student

Date: 10-Apr-17
Student Name: Andrew (Drew) LINDSAY Student Number: 27249168
Student Email: drew.lindsay@alumni.ubc.ca Honours Specialization: MICB
Course Name: BIOL Course Number: 440-001 ✓
Supervising Professor: Michael DEYHOLOS Total credits upon successful completion: 6

PART B: To be completed by the Professor in consultation with the student

Course Methodology (check one):

- ☒ Research (generation of original data) ☐ Lecture/Seminar
☐ Readings (in-depth literature review) ☐ Other (please specify): _____

Course Description: Provide a short description below and attach a detailed outline.

Computational analysis of plant DNA sequences for the characterization of mobile DNA elements and their evolution.

Start Date: 15-May-17 End Date: 11-Aug-17

Student Evaluation: Provide a detailed description of how the student will be evaluated by listing each course component as a percentage of the final grade.

Please see attached outline. (May 15 - Jun 22, and

Number of instructional hours (hours per week of student-professor contact): 1

Number of independent study hours (hours per week of independent student work): 11

Undergraduate Research Conference: student would like to present at URC 'April 2018

Will the student be presenting? ☒ YES ☐ NO If yes (select one only): POSTER or ORAL but will also present in Aug 2017 to satisfy course requirements

PART C: Signatures

Reviewed and approved by:

Student: Drew Lindsay
Professor: Michael Deyholos
Unit Head: Michael Russello (Associate Head)
Dean: [Signature]

Date: 12 APRIL 17
Date: 12 APRIL 17
Date: 17 APRIL 17
Date: April 18, 2017

Personal Information ("Information") provided on this form is collected pursuant to section 26 of the *Freedom of Information & Protection of Privacy Act (the "Act")*, R.S.B.C. 1996, c.165 for the purpose of processing of arranging your directed studies requirements. The Information will be used and shared within UBC in accordance with the Act. Any questions regarding the collection of the Information may be directed to the appropriate faculty as listed on the front page.

Copies to: Dean's Office/Unit Head/Professor/Student - via email

Revised: July 23, 2014

Minor in Computer Science
2016w



Unit 2 – Honours Thesis in Biology
Biology 440 (6 credits)
Drew Lindsay, May - August 2017

Calendar Description:

BIOL 440 001 (Thesis) Honours Thesis

Students undertake a research project on a specific topic as agreed upon by the faculty member and the student. A written thesis is required, with a public presentation of the thesis in the form of a poster or a seminar. Credits: 6

Instructor:

Name: Deyholos, Michael

Office: SCI 156

Phone number: (250) 807-8541

Email Address: michael.deyholos@ubc.ca

Course Description:

Through computer based analyses, the student will analyze available DNA sequence from plant genomes, to identify and characterize mobile DNA elements. The student will use existing and custom bioinformatics tools to make inferences about the evolution of the mobile DNA. Key milestones in the project include:

- (1) a review of current literature to identify novel software tools for analysis of mobile DNA.
- (2) implementing existing software and custom code (e.g. R, Python, MySQL) to identify elements in existing DNA sequence databases.
- (3) implementing existing software and custom code (e.g. R, Python, MySQL) to infer the evolutionary history of the elements within and between species.
- (4) writing of honours thesis.

Course Evaluation:

| | | Date Due |
|-----------------------|------|-------------------------------------|
| Proposal | 15 % | May 23, 2017 |
| Literature Review | 15 % | June 5, 2017 |
| Presentation | 20 % | Aug 10, 2017 or earlier (venue TBA) |
| Final Report | 30 % | Aug 11, 2017 |
| Supervisor Evaluation | 20 % | |
| Total | 100% | |

The research proposal is expected to be approximately 1,500 words long and will explain the background, motivation, objectives, and proposed methods for the research project.

The literature review is expected to be approximately 3,000 words long and will summarize current knowledge about the evolution of transposable elements in plants.



The student will present an oral presentation to an invited audience no later than Aug 10, 2017.

The final report is expected to be approximately 5,000 words long and will briefly describe the objectives of the project, and then critically and in more detail explain and evaluate the methods and results of the experiments.

The supervisor's evaluation will be based on the student's attendance and effort in the computational analyses, as well as the supervisor's interpretation of the student's judgment, initiative, and problem-solving abilities.

Required Materials:

As the research will be conducted entirely on computer, no laboratory safety training (WHMIS) training is required.



Special Circumstances:

- *Late Reports:* Except in exceptional circumstances and pre-arranged cases, late reports are subject to a penalty of 25% per day.
- *Attendance:* The student will work an average of 3 hours per week in the laboratory. The student is expected to meet bi-weekly with the primary supervisor (Dr. Deyholos).

Academic Integrity:

The academic enterprise is founded on honesty, civility, and integrity. As members of this enterprise, all students are expected to know, understand, and follow the codes of conduct regarding academic integrity. At the most basic level, this means submitting only original work done by you and acknowledging all sources of information or ideas and attributing them to others as required. This also means you should not cheat, copy, or mislead others about what is your work. Violations of academic integrity (i.e., misconduct) lead to the breakdown of the academic enterprise, and therefore serious consequences arise and harsh sanctions are imposed. For example, incidences of plagiarism or cheating may result in a mark of zero on the assignment or exam and more serious consequences may apply if the matter is referred to the President's Advisory Committee on Student Discipline. Careful records are kept in order to monitor and prevent recurrences.

A detailed description of academic integrity, including the policies and procedures, may be found at:

<http://okanagan.students.ubc.ca/calendar/index.cfm?tree=3,54,111,0>

If you have any questions about how academic integrity applies to this course, please consult with your professor.

UBC Okanagan Disability Resource Centre:

The Disability Resource Centre ensures educational equity for students with disabilities, injuries or illness. If you are disabled, have an injury or illness and require academic accommodations to meet the course objectives, please contact Earllene Roberts, the Diversity Advisor for the Disability Resource Centre located in the University Centre building (UNC 214C).

UNC 214C 250.807.9263

Email: earllene.roberts@ubc.ca

Web: <http://students.ok.ubc.ca/drc/welcome.html>

UBC Okanagan Equity and Inclusion Office:

UBC Okanagan is a place where every student, staff and faculty member should be able to study and work in an environment that is free from discrimination and harassment. UBC prohibits discrimination and harassment on the basis of the following grounds: age, ancestry, colour, family status, marital status, physical or mental disability, place of origin, political belief, race, religion, sex, sexual orientation or unrelated criminal conviction. If you require assistance related to an issue



of equity, discrimination or harassment, please contact the Equity and Inclusion Office or your administrative head of unit.

UNC 216 250.807.9291

Email: equity.ubco@ubc.ca

Web: www.equity.ok.ubc.ca

Health & Wellness:

At UBC Okanagan health services to students are provided by Health and Wellness. Nurses, physicians and counsellors provide health care and counselling related to physical health, emotional/mental health and sexual/reproductive health concerns. As well, health promotion, education and research activities are provided to the campus community. If you require assistance with your health, please contact Health and Wellness for more information or to book an appointment.

UNC 337

Email: healthwellness.okanagan@ubc.ca

Web: www.students.ok.ubc.ca/health-wellness