Independent Study in Biology - BIOL 497, Invasion and Allelopathy
Fall 2017 Spring 2020
3 credits

Instructor: Diane Wagner
260 Arctic Health Research 101D Murie Bldg
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474-5227
Office hours T 2-4 M 1-3 and R 9-12 or by appointment

Course Description
In this independent study course the student will do original research to explore the allelopathic (toxic chemical) properties of Vicia cracca (bird vetch) and test the hypothesis that allelopathy is a mechanism by which vetch outcompetes native plants in the Fairbanks area.

Prerequisites (may be concurrent)
BIOL 434 Structure and Function of Vascular Plants
BIOL 371 Principles of Ecology

Meeting time
Friday 9-10 am in 260 AH RB
One hour per week in person or via Zoom, time TBA

Readings
Readings will be provided, and supplemented by student research, from the primary literature.

Goal - The goal of this course is to provide research experience in the form of a project highly relevant to the student’s interests.

Objectives
- Produce a data set to test the hypothesis that vetch is allelopathic and reduces the germination and growth of other plant species
- Working with the instructor, analyze and interpret the data
- Write a short report summarizing the research results

Instructional Methods
Meet with instructor 1 hour per week to discuss progress. Work independently in the lab and the greenhouse to develop methods and test hypotheses. Work independently to produce a final report, with the opportunity for incorporation of feedback from the instructor. Expect to invest 1 hour per week in direct instruction and at least 6 hours per week working independently in the lab and greenhouse.

Expectations
- Read relevant primary research papers on allelopathy and bird vetch biology
- Design and conduct experiments to test the hypothesis that vetch is allelopathic
- Analyze and interpret the research results
- Write a short (3-5) single-spaced page paper summarizing the results in the format of a scientific report, containing a minimum of 5 relevant references.
Evaluation
The quality of the work will be assessed with consideration of the following:
- Preliminary and trial experiments precede the finalization of a protocol
- Experimental protocols include appropriate controls and replication
- Experiments are carried through to completion and data collected with care at appropriate times
- Data are handled responsibly (recorded clearly, put into the computer accurately, duplicate copies made)
- Data interpreted fairly
- Results are summarized and reported clearly in graphs and tables, and discussed in the context of similar, published work on the topic

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<tr>
<th>Element of evaluation</th>
<th>Points</th>
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<tr>
<td>Quality of protocol</td>
<td>25</td>
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<td>Quality of data set</td>
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<td>Quality of written report</td>
<td>50</td>
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The student will be evaluated on a Pass/Fail basis.
In order to pass, total points earn must be >65%.

Course Policies
The student is expected to attend all scheduled class sessions, come to class prepared, turn in all assignments on time, and participate responsibly in research. Late assignments will be marked down by 5% per day with a maximum penalty of 50%.

Academic Dishonesty
UAF students are subject to the Student Code of Conduct. Plagiarism, or the use of someone else’s text, graphics, or original ideas without proper citation, is a serious violation of the Code. Academic dishonesty will lead to a failing grade in the course and possibly to further disciplinary action. More information on academic honesty and plagiarism can be found on the Biology and Wildlife website (https://www.bw.uaf.edu, Graduate/Academic Honesty).

Disabilities Act
The Office of Disabilities Services implements the Americans with Disabilities Act (ADA) and insures that UAF students have equal access to the campus and course materials. The instructor will work with the Office of Disabilities Services (203 WHIT, 474-7043) to provide reasonable accommodation to students with disabilities.

Title IX Protection: University of Alaska Board of Regents have clearly stated in BOR Policy that discrimination, harassment and violence will not be tolerated on any campus of the University of Alaska. If you believe you are experiencing discrimination or any form of harassment including sexual harassment/misconduct/assault, you are encouraged to report that behavior. If you report to a faculty member or any university employee, they must notify the UAF Title IX Coordinator about the basic facts of the incident.

Your choices for reporting include:
1. You may access confidential counseling by contacting the UAF Health & Counseling Center at 474-7043;
2. You may access support and file a Title IX report by contacting the UAF Title IX Coordinator at 474-6600;
3. You may file a criminal complaint by contacting the University Police Department at 474-7721.

Schedule

Course runs from 15 September to 15 December 2017, 3 Feb to 1 May 2020 (14 weeks).
Meetings with instructor Fri 9–10 TBA
Independent lab and greenhouse work schedule will vary.
Protocol due 30 September M 17 February 2020
Data set(s) due 15 November 2017 M 6 April 2020
Draft report due M 13 April 2020
Final report due 15 December 2017 M 27 April 2020