BIDI 1XXX (3CR): CURIOSITY, OBSERVATION & THE SCIENTIFIC PROCESS (COSP)

Instructor: Dr. Brigid O’Donnell  
Office: 201B Boyd  
bcodonnell@plymouth.edu  
Office hours: TBD

Meetings:  
Section 1: TUES 9:30-11:30AM, Section 2: TUES 2-4PM in location TBD  
Section 1 + 2: WED Incubator 1:25-2:15 (?) in Bradford Room (location different than above)

Required readings:  
All other required readings will be available on Moodle.

Catalog description: COSP is organized around the workings of the scientific process, and in particular, how focused observation and curiosity comprise the cornerstone of rigorous hypotheses in biology. Careful and repeated observations of biological phenomena necessarily precede scientific understanding, and it is precisely this practice of focused observation that gives rise to robust questions that fuel rigorous scientific investigations. This course focuses upon the use of repeated observations of biological phenomena and the connection of these observations to the construction of strong hypotheses and the execution of the scientific process. This semester, you will use the practice of focused observations for biological phenomena of interest to you with the goals of formulating hypotheses, designing experiments, and gathering data to test your hypothesis. This course cultivates students’ curiosity, builds a sense of agency, and demonstrates how engaged observation is integral to scientific investigations. (SIDI)

This is a Scientific Inquiry Directions (SIDI) course and as such, you will be exposed to the practices of biological investigations from a conceptual perspective as well as in a hands-on manner. The following assessments, among others, will be used to ascertain your growing skill set in these areas:

<table>
<thead>
<tr>
<th>Skill</th>
<th>Assessment(s)</th>
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<tbody>
<tr>
<td>Critical thinking</td>
<td>Repeated use of the scientific process; formulation of hypotheses following</td>
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<td>observational periods; design of experiments/data collection to test hypotheses</td>
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<td>Writing</td>
<td>Lab/field notebook records &amp; drafting of experimental designs</td>
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<td>Conducting research</td>
<td>Design of experiments/additional observations to test hypotheses</td>
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<td>Quantitative reasoning</td>
<td>Creation of figures/tables based on data collected</td>
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<tr>
<td>Information technology</td>
<td>Use of <em>Web of Science</em> to locate pertinent published studies</td>
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<td>Collaborating with others</td>
<td>Group work in hypothesis formulation &amp; design of experiments; small group</td>
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<td>discussions in class</td>
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By the end of the semester, you will:

- *understand* the scientific process both conceptually and in practice
- *appreciate* the integral role of observation and curiosity in the scientific process
- *participate* in repeated observations of biological phenomena
- *use* the scientific process to pose questions, collect data, and assess support for hypotheses

This course takes a contemplative approach to scientific inquiry, and is learner-driven with a focus on first-person knowing.

Grade determination  
A. Observational data (lab/field notebook)  300
B. In class activities 300
C. Pre-class reactions to readings of *The Forest Unseen* (posts on Moodle) 200
D. Figures/tables summarizing data collected 75
E. Final presentation (finals week) 100
F. Professionalism, participation, engagement 25

**Total Points** 1000

**Grade determination:** A minimum score of 60% is required to pass the course. Final grades will be assigned as follows: A 94-100; A- 90-93; B+ 87-89; B 84-86; B- 80-83; C+ 77-79; C 74-76; C- 70-73; D+ 67-69; D 64-66; D- 60-63; F 59 or below. At any point in the semester, you should be able to calculate your grade and assess where you stand – feel free to contact me about your grade-in-progress at any time.

**Late Policy:** Late submissions will be penalized at a loss of 10% of the total points per day, *including* weekend days.

**Classroom Etiquette:** Students are not allowed to use phones in any of my courses (except in cases of emergencies - you should speak with me prior to class meetings when this is the case). Prior to class, during breaks, and after class are the only times that phone use is acceptable. *This is a non-negotiable policy and failure to abide will result in you being asked to leave the classroom.*

**Attendance:** You are expected to attend class regularly. A failure to attend class will result in academic consequences in terms of your preparation for class assignments and performance on assessments.

**Participation in Discussions/In-class Activities:** Active participation in discussions and in-class activities is expected. Please come to class prepared and ready to offer commentary of substance at each session.

**Honesty Code:** Students will adhere to the standards of academic honesty described in the Plymouth State University handbook. Plagiarism, cheating or any other violation of the code will result in immediate referral to the Academic Integrity Panel for further action.

**ADA Statement:** Plymouth State University is committed to providing students with documented disabilities equal access to all university programs and facilities. If you think you have a disability requiring accommodations, you should immediately contact the Disability Services Office (DSO) in the Center for Student Success in Mary Lyon (535-3065) to determine whether you are eligible for such accommodations. Academic accommodations will only be considered for students who have registered with DSO. If you have a Letter of Accommodation for this course from DSO, please provide the instructor with that information privately so that you and the instructor can review those accommodations.

**Students with Documented Disabilities:** Plymouth State University is committed to providing students with documented disabilities equal access to all university programs and facilities. If you think you have a disability requiring accommodations, you should immediately contact the PASS Office in Lamson Library (535-2270) to determine whether you are eligible for such accommodations. Academic accommodations will only be considered for students who have registered with the PASS Office. If you have a Letter of Accommodation for this course from the PASS Office, please provide the instructor with that information privately so that you and the instructor can review those accommodations.

Please note: If you are struggling (experiencing difficulties, missing classes, personal or family problems, etc.) there are offices at PSU available to provide academic support as well as career and personal counseling. The PSU Counseling and Human Relations Center (across from Hyde Hall) 5-2461 can direct you to the proper source of help. Confidentiality is assured.
**Moodle:** This course will use Moodle, an online learning system. Moodle will be the primary mode of communication during the semester. Checking in with Moodle several times a week is necessary to stay up to date with class activities, expectations, and any shifts in the schedule or content as they arise.

**Spring 2018 schedule (subject to change)**

| Week 1, Jan 31 & Feb 2 | Course Introduction  
The Nature of Science  
*Initial Observational Period*  
*Moodle post 1 due* |
|------------------------|-----------------------------------------------------|
| Week 2, Feb 7 & 9      | The Scientific Process  
*Moodle post 2 due* |
| Week 3, Feb 14 & 16    | Qualitative and Quantitative Data  
*Moodle post 3 due* |
| Week 4, Feb 21 & 23    | Subjectivity and Objectivity  
*Moodle post 4 due* |
| Week 5, Feb 28 & March 2 | Integrative Approaches to Biology  
*Moodle post 5 due*  
*Notebook check-in #1* |
| Week 6, March 7 & 9    |                                    |
| Week 7, March 14       |                                    |
| Week 8, SPRING BREAK   |                                    |
| Week 9, March 28 & 30  |                                    |
| Week 10, April 4       |                                    |
| Week 11, April 11 & 13 |                                    |
| Week 12, April 18 & 20 |                                    |
| Week 13, April 25 & 27 |                                    |
| Week 14, May 2 & 4     |                                    |
| Week 15, May 9 & 11    |                                    |

**Final Exam:** *Section 1: Section 2:*