BIO 8250-5460 Seminar – Fall 2018
Meeting Time: Wednesdays 4:00-6:30pm
Meeting Location: SERC 504
Instructor: Jocelyn Behm
Office Hours: By appointment

Course Description

Science: During this graduate seminar, we will explore how human impacts (and natural processes) alter biodiversity and subsequent ecosystem functioning through the lens of response and effect traits. Human activities (and natural processes) impact ecosystems and shift biodiversity by filtering for species based on their response traits. In turn, the effect traits of these remaining species dictate the nature and strength of ecosystem functioning. When response and effect traits are tightly correlated, ecosystem functioning can decline precipitously, yet the ubiquity of tightly correlated response and effect traits across species, ecosystems, and types of disturbance are not well known. Together we will synthesize from the literature correlations between response and effect traits and the mechanisms by which human impacts alter biodiversity and ecosystem functioning.

Professional Development: In addition, we will explore the art of composing 'data-less' papers. Ecological theory is often conveyed through 'data-less' review, perspective, and/or synthesis papers, and learning to write this type of paper is an important skill. Throughout the course of the semester, we will be reading many 'data-less' papers and we will examine the process of how they are structured and published.

Course Objectives

Science

1. We will delve into the functional diversity literature and examine how human impacts (and natural processes) affect community composition and ecosystem functioning (see more detailed scientific description below). This is a very active area of research which has ties to many systems and problems.

Professional Development

1. Writing review, perspective, and synthesis papers – i.e., papers with no newly collected data—is an important skill for scientists. In this seminar, we will explore the ins and outs of writing these 'data-less' papers, and practice this skill ourselves. Depending on the motivation and interest level of the group, we may even try to write our own cohesive data-less manuscript to submit for publication.

2. Effective communication of your work is essential as a scientist, and practice makes perfect! We will practice written communication throughout the course of the semester in order to exercise and improve this critical skill.

Course Structure

The course will be split into three phases: Conceptual background, Brainstorm, and Exploration and synthesis.

1. Conceptual background. The first few weeks of the course we will dive into the conceptual background literature on topics relevant to biodiversity and ecosystem functioning, functional diversity, response and effect traits, cross-scale interactions, non-random extinction/ extirpation, etc. The goal of this stage is for all of us to understand these papers and become conversant in these topics.

2. Brainstorm. After the background phase, we will develop a proposal for a review/synthesis paper with a conceptual figure / diagram that relates these processes and synthesizes the material and concepts we learned. We will also outline the structure for the remaining section of the seminar.

3. Exploration and synthesis. Given the synthesis and conceptual framework we brainstorm as a group, we will then search the literature (in our fields of interest) for empirical examples that support or refute components of the conceptual framework.

Course requirements and grading

1. Lead discussion during Conceptual Background phase on papers assigned by the instructor (instructor is available for optional consultation to go over material prior to leading seminar) (20 points).

2. Write weekly responses to each paper during the Conceptual Background phase, and comment on other students' responses. These responses give you a chance to practice writing each week and also practice critically reading the writing of your peers. Use the Discussion section of Canvas to post your response and comment on other students' posts. Each week make a new Discussion for that set of papers, and be sure to title each Discussion with the topic for that week and your name, ex: "Biodiversity and Ecosystem Functioning - Jocelyn" (10 points each week x 6 weeks = 60 points).

3. Write synthesis proposal with conceptual framework on ideas from Conceptual Background phase and present ideas to class (50 points).

4. Do literature search and lead discussion on (subset of) relevant papers during Exploration and Synthesis portion of seminar (20 points).

5. Write synthesis on full set of papers identified during literature search (100 points).

Course Schedule

This schedule shows the assigned readings for each week and who is leading the discussions. If the schedule does not show below, please follow this link (Links to an external site.).