

ENR 6000 – Research in Environment and Natural Resources Syllabus for Autumn 2019

Instructors: Brian H. Lower, Ph.D., Associate Professor, Lower.30@osu.edu

Goals: (1) To introduce new graduate students in the School of Environment and Natural Resources to graduate education, and (2) to help those students begin a successful graduate research program. As such, we will overview available university and school resources and requirements, as well as assist with the development of professional skills needed for thesis and research preparation.

Objective: Each student, *in consultation with her or his advisor*, will develop a literature review that follows specific guidelines similar to a systematic review. ENR 6000 is designed to facilitate this process through the completion of several assignments, *but the impetus is on you to develop the ideas that will become your thesis*.

Readings: A textbook is not required for this course. Dr. Lower will post resources (e.g., journal articles, book chapters) on Carmen (<https://carmen.osu.edu/>) that you should read.

Course Requirements: The course is graded satisfactory/unsatisfactory (S/U). Participation is expected at all class meetings, and assignments are due on the dates specified below. While excellence in assignment completion may not be visible in a final grade of “satisfactory”, excellence will be evident in the final research product of the student’s graduate program (e.g., students typically include their literature reviews as the first chapter of their thesis and some students have even published their reviews as standalone articles).

Course Schedule:

Date	Location	Details
Sept. 3	245 Kottman Hall 5:00-7:00 pm	Introductions, syllabus and course expectations. Prof. Jessica Page (Veterinary Medicine Library) will lead a discussion of web-based literature searches and library resources, as well as how to read and understand primary research literature.
Sept. 24	245 Kottman Hall 5:00-7:00 pm	Dr. Lower will lead a discussion on writing a literature review for this class.
Oct. 8	No class	DUE: Upload concept map to Carmen
Oct. 15	No class	DUE: Upload your search criteria and references to Carmen
Nov. 5	No class	DUE: Upload a Draft of your Literature Review to Carmen
Nov. 15	No class	DUE: Complete your peer review of TWO different manuscripts on Carmen Two manuscripts will be randomly assigned to you no later than Nov. 9, and you are to conduct a review on each no later than Nov. 16.
Dec. 3	No class	DUE: Upload a Final Draft of your Literature Review to Carmen Email your final literature review in PDF format to your advisor by 11:59 pm on December 5. Make sure to cc Lower.30@osu.edu or you will not receive a satisfactory grade.

Submit all assignments to Carmen (<https://carmen.osu.edu/>) unless otherwise noted above.

There are five total class assignments: (1) Concept map, (2) Search criteria and references, (3) Draft literature review, (4) Peer reviews, and (5) Final literature review. Details for each assignment are listed below.

1. Concept Map

As part of this course, you will develop a concept map that outlines the core of your research area. We recognize that your concept map could change as you get farther into your literature review, but starting here is a good exercise for thinking about the work ahead of you – a solid concept map should guide your writing. For example, you may decide to detail out your research questions and how different key search words relate or not to those questions as well as to each other. For this class, you are required to **submit your concept map to Carmen** (<https://carmen.osu.edu/>), but focus on finding a format that works best for you. Examples include online software such as Visual Understanding Environment (<http://vue.tufts.edu/>), Microsoft Powerpoint, or simply pen and paper. Also, get creative and take care with your ideas – it's possible that your final product could be a figure in your thesis or other published work!

2. Search Criteria and Article List

During the first class meeting, we will discuss literature and systematic reviews and you will be provided instructions on how to conduct a systematic review. Please read the two chapters on these topics provided on Carmen. You are not required to do a full systematic review as part of this class (but you are welcome to do so). However, you *are* required to submit the following:

- (1) A list of key search terms that you will use to pull from the primary research literature, including any search terms that you will EXCLUDE from your search
- (2) The database(s) from which you expect to pull that literature
- (3) The total list of articles pulled using those criteria.

The list of key search terms and database(s) as well as the total # of articles should be submitted as one Microsoft Word document to Carmen (<https://carmen.osu.edu/>). **However, the articles you pull using your key search terms can be submitted in any format that works for your research.** For example, you may choose to submit the list as a Microsoft Excel spreadsheet with author names, publication year, abstract, key search terms, etc. that are relevant to your work. There are other ways to share this information (e.g., Microsoft Access, citation tracking software), so long as the output is something readable to the instructors (e.g, you may need to export as a PDF if the software is not something readily useable by others). The article list you submit should include every article pulled using your key search terms and exclusion criteria (if identified). Some searches may pull hundreds of seemingly relevant articles that ultimately are unhelpful, so it is possible that you will want/need to revise your search criteria at least once. *Note: do not limit yourself (e.g., by putting in too many keywords) to reduce your list to the smallest # of articles, as you may miss important sources of information.*

3. Draft Literature Review

This assignment requires that you **submit a draft of your literature review to Carmen** (<https://carmen.osu.edu/>). Your review must cite at least 30 articles pulled from the primary literature during your search. The draft should be complete (full sentences and paragraphs, figures included, and formatted in a particular journal style) enough so that another colleague could reasonably provide you with feedback/guidance that will facilitate final writing of your review during this course. *Note: When you submit this draft to Carmen* (<https://carmen.osu.edu/>), *you should also consider submitting the draft via email to your advisor – hopefully, you have already received feedback by this point, as part of this assignment is to get you collaborating with your advisor and developing those collaborative ideas. Also, an annotated bibliography is unacceptable unless you have obtained permission from your advisor to do so AND provided documentation of that permission to Dr. Lower prior to this due date.*

4. *Blinded Peer-Reviews*

You will have one week to complete a peer review of two other students' manuscripts and **submit both of your reviews to Carmen** (<https://carmen.osu.edu/>). Please plan your time accordingly. Peer reviews are one of the most critical (and frustrating) aspects of publishing that are aimed at ensuring only methodologically-rigorous and scientifically-appropriate articles are published in the primary literature. Additional instructions on conducting your peer-reviews will be provided on Carmen and via email.

5. *Final Literature Review*

The bulk of this course provides you the time and structure in which to complete a literature review constructed around your problem statement outlined in your concept map. The literature review is a presentation of the body of knowledge relevant to your research problem. In this review, you recognize the contributions of important authors to that body of knowledge, and present the theory(ies) that defines the research area and results of past studies that support (or not) this theory (or theories). Furthermore, you should describe gaps or deficiencies in the published literature and how the research you will undertake should help to correct these problems.

For this course, we expect **a review of 7-10 pages, single-spaced, with at least 30 references from your search of the relevant literature. The final product will be developed in collaboration with your advisor and given to him/her upon completion.** We encourage you to find a published literature review (or even better, a systematic review) in your area of study (or similar) and use it as a guideline in developing your own review – even better if that published piece has identified methods that can be replicated.

This assignment is intended to be relevant and useful to your thesis, so we encourage you to work with your advisor to identify the most appropriate format and necessary content. That said, we expect your literature review to contain an introduction that identifies:

- a. The context (relevance) of your study to environmental and natural resource management;
- b. What is “known” in your area of research (convey the most important information in just a few sentences-- use this section to establish the current state of knowledge and set the scene for the next section);
- c. What is “unknown” in your area of research (the gap in knowledge that you will address);
- d. Why it is important to address this lack of knowledge (frame the problem that you plan to address);
- e. Your research question(s) and/or hypotheses. This section should reflect what you aim to answer or accomplish with your research project.

This introduction will then be followed by separate sections of the literature review, typically broken into thematic areas. Use the following heading structure (three levels if needed) when organizing your paper:

1st level heading: Bold face, centered

2nd level heading: Bold face, left-justified

3rd level heading: Italicized, left-justified, indented 1" followed by a period. Regular text follows like this sentence (regular font, no bold or italicizing) and continues until the next section is introduced.

Your literature review should also conclude with a “significance” section, where you will describe how your results/findings will contribute to environmental and natural resource management. What should be possible to do (or do better) after you’ve done/published your work that was not possible before? Detail out this information.

Don't hesitate to contact us with questions, and good luck!

UNIVERSITY RESOURCES

First and foremost, you are always welcome to schedule an appointment or drop by our offices. The university also has a wide variety of other resources in place to support students and a safe campus environment. Students experiencing stress, sleep problems, anxiety, depression, interpersonal concerns, death of a significant other, and alcohol use or *any event that has significantly impacted your concentration on education, work or family matters* are encouraged to contact the Office of Student Life at (614) 292-9334 (<https://studentlife.osu.edu/>) and/or Counseling and Consultation Services (CCS) at (614) 292-5766 (www.ccs.osu.edu) for assistance, support, and advocacy. CCS offers a number of FREE *drop-in-when-you-are-able* workshops (<http://www.ccs.ohio-state.edu/drop-in-workshops/>). No registration is necessary, no prior appointment is needed, and workshops are open to all enrolled OSU students.

Reporting Incidents of Bias

To ensure a safe learning environment, please speak to the instructor immediately if you feel that you have experienced bias (whether based on race, ethnicity, gender identity or expression, sexual orientation, religion, national origin, age or sex) within the classroom. You can also anonymously report any incidents of bias experienced on campus to the [Bias Assessment Response Team](#) (BART).

Career Services

The School of Environment and Natural Resources has a Career Services Office located in 210 Kottman Hall. Please call the main office at 614-292-2265 or email senr@osu.edu to schedule an appointment or use the available Express Walk-In Hours hosted every Friday 9am – 4pm. You are also encouraged to explore Hire-a-Buckeye: <http://senr.osu.edu/hireabuckeye>.

OTHER POLICY AND PROCEDURES

Accommodating Students' Learning

To facilitate your learning and participation in this class, you are responsible for letting the instructor know at the beginning of the semester or as soon as it comes to your attention during the semester if you have university-approved circumstances that require special accommodations (e.g., student athlete, ROTC, Marching Band, a disability). You are also required to inform the instructor about a need to miss class prior to any excused absence. If you have a disability, then please register with the Office of Student Life Disability Services (<http://www.ods.ohio-state.edu/>) as soon as possible by contacting (614) 292-3307 or visiting room 150 of Pomerene Hall; then let your instructor know.

Academic Integrity

This course adheres to the *Code of Student Conduct* (<http://studentaffairs.osu.edu/csc/>) and policies set by the OSU Committee on Academic Misconduct (<http://oaa.osu.edu/coam.html>). All students should familiarize themselves with these materials, and act appropriately. Academic misconduct is defined by the Ohio State University's Code of Student Conduct (Section 3335-23-04) as: "Any activity that tends to compromise the academic integrity of the University, or subvert the educational process." Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Academic misconduct will not be tolerated in this class. For more information, please feel free to review the "Ten Suggestions for Preserving Academic Integrity" <http://oaa.osu.edu/coamtensuggestions.html> or "Eight Cardinal Rules of Academic Integrity" <http://www.northwestern.edu/provost/students/integrity/rules.html>.