ENR 6000 – Research in Environment and Natural Resources
Syllabus for Autumn 2016

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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. Drs. Dietsch and Lower will post resources (e.g., journal articles, book chapters) on Carmen (https://carmen.osu.edu/).

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:

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<tr>
<th>Date</th>
<th>Location</th>
<th>Details</th>
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<tbody>
<tr>
<td>Aug. 30</td>
<td>231A Kottman Hall 5:00-7:00 pm</td>
<td>Introductions, syllabus and course expectations; Dr. Alia Dietsch will lead a discussion on writing a literature review for this class. Students will also be introduced to concept mapping software.</td>
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<td>Sept. 6</td>
<td>231A Kottman Hall 5:00-7:00 pm</td>
<td>Dr. Brian Lower &amp; Jessica Page (Veterinary Medicine Librarian) will lead a discussion of web-based literature searches and library resources, as well as how to read/understand primary research literature.</td>
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<tr>
<td>Sept. 13</td>
<td>No class</td>
<td>DUE: Concept map**</td>
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<td>Sept. 27</td>
<td>No class</td>
<td>DUE: Your search criteria and article list**</td>
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<td>Oct. 25</td>
<td>No class</td>
<td>DUE: Draft of Literature Review**</td>
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<tr>
<td>Nov. 1</td>
<td>No class</td>
<td>DUE: Your peer review of TWO different manuscripts**</td>
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<td>Two manuscripts will be randomly-assigned to you no later than Oct. 26, and you are to conduct a “blind” review on each no later than Nov. 1.</td>
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<tr>
<td>Dec. 6</td>
<td>No class</td>
<td>DUE: Final draft of Literature Review**</td>
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<td>Email your final literature review in PDF format to your advisor by 11:59 pm on December 6. Make sure to cc <a href="mailto:Lower.30@osu.edu">Lower.30@osu.edu</a> and <a href="mailto:Dietsch.29@osu.edu">Dietsch.29@osu.edu</a> or you will not receive a satisfactory grade.</td>
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** Submit all assignments to Carmen DropBox (https://carmen.osu.edu/) unless otherwise noted above.
There are five total class assignments: (1) Concept map, (2) Search criteria and article list, (3) Draft literature review, (4) Blinded 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 (i.e., 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 Dropbox ([https://carmen.osu.edu/](https://carmen.osu.edu/)), but focus on finding a format that works best for you (e.g., an online software such as Visual Understanding Environment – [http://vue.tufts.edu/](http://vue.tufts.edu/), powerpoint, pen and paper). Also, get creative – you may choose to publish the final product as a figure in your work!

2. **Search Criteria and Article List**

During the first class meeting, we will discuss systematic reviews and you will be provided instructions on how to conduct a systematic review. 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 Dropbox ([https://carmen.osu.edu/](https://carmen.osu.edu/)). However, the articles you pull using your key search terms can be submitted in any format (e.g., Access database, Excel, citation software tracking system) **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; you are only required to submit some type of documentation to demonstrate that you completed this task. 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 articles, so it is possible that you will want 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.

3. **Draft Literature Review**

This assignment requires that you submit a **draft of your literature review to Carmen Dropbox** ([https://carmen.osu.edu/](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 Dropbox** ([https://carmen.osu.edu/](https://carmen.osu.edu/)), you should also consider submitting the draft via email to your advisor if you have not already received feedback by this point. Also, you will not receive credit for submitting an annotated bibliography unless you have obtained permission from your advisor to do so **AND** provided documentation of that permission to Drs. Lower and Dietsch by 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 Dropbox (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.

Although there is no minimum length, published literature reviews can be (and often are) greater than 10 pages long, single-spaced and include more than 40 references. **For this course, we expect a review of 6-10 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.

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!