ECOL 505 Foundations of Ecology (Fall 2015)

Instructors: Alan Knapp, A/Z E210
aknapp@colostate.edu
Dale Lockwood, 131 Johnson Hall
dale.lockwood@colostate.edu
Ava Hoffman, A/Z E428
avamariehoffman@gmail.com

Tuesday – Thursday, 1100-1150 AM, Rm W9 Plant Science Bldg.

Text: No required text – but a great book for your shelf is:

(Paperback edition)

Goals of the course:
The Graduate Degree Program in Ecology (GDPE) is an interdisciplinary program for students with interests in a wide range of ecological subjects. The Program’s goal is “to provide advanced training in current ecological methods, theories, concepts, controversies and applications by synthesizing knowledge from a wide variety of traditional disciplinary areas of science”. ECOL505 is the starting point for meeting this goal. It is one of the few courses that all GDPE students will share in their programs of study, despite their varied backgrounds and academic goals.

Although the course title might imply that ECOL 505 is a “General Ecology” course at the graduate level, this is not the case. One might also assume that a “Foundations” course might be a “History of Ecology” course – also not the case. I view this course as one that emphasizes students exploring and gaining appreciation for the breadth of Ecology. The rest of your academic careers in GDPE can be focused on receiving advanced training in methods, concepts, controversies, etc. for the particular sub-discipline that interests you most (the “depth” of your training). Here is where we will improve our understanding of the context of ecology. This requires some knowledge of where, how and why Ecology came to be, how and why ecologists ask questions today, appreciating what is unique about Ecology, how it compares to other sciences, and where Ecology might be headed in the future. In other words, this course is designed to help you become a “student of Ecology” – the discipline – to provide context for your work in Ecology – the science.

Along the way, students will be exposed to ecological ideas past and present, with the goal of valuing those ideas so they can approach the ecological future with an open mind.

Format:
Typically there will be a lecture on Tuesday to introduce a topic or issue and a discussion on Thursday that may be general in nature or may focus on critiquing studies from the literature or include a presentation on the career of a successful ecologist. Readings will for the most part be from journal papers (most available from the course website). This basic format will be flexible however with several guest speakers presenting topics and perhaps leading discussions.
<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Readings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sep 1, 3</td>
<td>Group project organization, more context…</td>
<td>Mayr 1996, Reiners et al. 2013</td>
</tr>
<tr>
<td>Sep 8, 10</td>
<td>The why, where and how of ecology</td>
<td>Graham &amp; Dayton 2002, Elliott &amp; Brook 2007</td>
</tr>
<tr>
<td>Sep 15, 17</td>
<td>How ecology is done I: Real experiments vs. the real world</td>
<td>Stohlgren et al 2003, Naeem et al 2000, Gewin 2009</td>
</tr>
<tr>
<td>Sep 22, 24</td>
<td>Using succession to illustrate a philosophical shift in ecology.</td>
<td>Clements 1916, Gleason 1939</td>
</tr>
<tr>
<td>Oct. 27, 29</td>
<td>Successful Ecologists Bio Presentations</td>
<td></td>
</tr>
<tr>
<td>Nov. 10, 12</td>
<td>Ecology, policy and getting involved</td>
<td>Ecology-Policy Interface</td>
</tr>
<tr>
<td>Dec. 8, 10</td>
<td>The review process…</td>
<td>A look back, a look ahead and distilling principles</td>
</tr>
</tbody>
</table>
Grading and Assignments:

Weekly assignments: 50% – From week 3 onward, discussions of the weekly topic and the readings will be held (usually) on Thursday. To facilitate involvement by all – which is a daunting task for a class this size – each student will upload a minimum of 2 questions/comments for discussion based on the readings. These can be points of interest, confusion, elaboration, or general (not specific) questions, etc. We will use these to generate discussion in areas that you have an interest. These comments must be uploaded into the course Canvas page (barring server problems) by 8:00 am the morning of the proposed class discussion time!

Additionally, each week, students may be called on to provide a brief elaboration on their comments as an introduction to their discussion points. So please be prepared for class!

Discussions: 20% – this class is all about ideas in and about ecology, understanding how and why ecology is done, and identifying the strengths and weaknesses of different ecological approaches, so your participation in the discussions is a key part of your course grade. Participation will be assessed in a number of ways...in-class surveys and activities, random attendance, etc...

Group project and Presentation: 10% - Biographies of Successful Ecologists A powerpoint presentation to the class must be made and emailed to me (or a pdf of a powerpoint if the file is too large).

Final exam: 20%. The final exam (a short paper) will be based on synthesizing ideas from a selected group of readings assigned during the semester. More details about this as the semester proceeds.
What can we learn from the biographies of successful Ecologists?

5-6 group projects…5 students per group – 1 presenter

Goal – From the Web or other sources (Web of Science, Home pages, Google Scholar), trace the career paths of our most successful contemporary ecologists

Each report should include (if possible):

An academic biography (degrees from where and when)
Positions held (when and where and what)
Graphs of:
  - Publications/year
  - By journal + Changes through time
  - By authorship (order) + Changes through time
  - Most cited papers (3-5) and citations/year
Major topics of research + Changes through time
Successful students?
Did they have a “famous” advisor? Can you trace their lineage back to “founders”? Any other interesting facts or graphs you can provide.

In the past, groups have conducted short email or phone interviews with their “subjects” (who are often quite flattered) and asked them for their favorite graduate school, career or general scientific advice. As well as what they enjoy most (and least) about their careers.

Prepare a 10 minute powerpoint presentation to be presented to the class and turned in to me.

Select from:

ISI most highly cited scientists in Environment/Ecology (you can use either the 2001 or 2014 list (methods of selection differ)

http://highlycited.com/index.htm#table

Or – if you want to choose someone not on this list, please check with me first. Do NOT select CSU ecologists (even though many are worthy).