Final Paper Guidelines

Final Paper Due: <u>Dec 12, 5pm US Eastern</u>

Directions:

Use readings from class and other literature to set the stage for your main question(s). Choose 2 spatial analysis techniques we learned in lab and incorporate them in your analysis portion of your paper. Below are guidelines for particular sections.

(1) **Introduction** section:
 a. Include relevant discussion of theory, and use primary citations for those theories.
 b. Use theory and findings from previous studies to set the stage for your study.
 c. Clearly state what is missing from the literature, and how <u>Your Study</u> can address that research gap – this is often known as "the hook" in proposal and manuscript writing.
 d. After setting the stage for your study, state Questions or Hypotheses you plan to address.
(2) **Methods** section:
 a. Clearly state how you will test your hypotheses or answer the questions posed in the introduction with certain approaches.
 b. Use at least 2 techniques you learned in Lab. Techniques are those such as Moran's I (or Mantel test), Variograms, Species Distribution Models, Species Distribution Model assessments, Species-Area Relationships, investigating analyses at different scales, etc.

Format:
The paper will follow the scientific paper format in *Global Ecology and Biogeography* (a journal you might consider publishing in with research related to Spatial Ecology).

GEB website: http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1466-8238

You will need to submit your paper to D2L Assignment Box for "Final Paper", in the "**Research paper**" format specified by the journal. Instructions are found here: http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1466-8238/homepage/ForAuthors.html

*Also take a look at any current "**Research paper**" to get an idea of what these sections look like – specifically note there are 5 sections to the Abstract.

Exceptions to the GEB Author guidelines above include:
 1) Upload as MS Word Document (so I can make electronic comments)
 2) Font size = 12 point (Times New Roman, Arial, or similar)
 3) Double-spaced throughout, with Line Numbers

4) Aim for 5-7 pages excluding references
5) You will not be submitting your paper to the journal (submit it to Final Paper Assignment on D2L).
6) You must have at least 2 figures.
7) Embed Tables & Figures within the text, after they are first referred to. Please include detailed Figure and Table legends (Figure legends after the Figure; Table legends at the top of a Table).
8) Your Data Accessibility Statement should be a supplement (added after the References) and should include:
   a. A description of where the data are.
   b. Links to or the names of the filename(s) containing any code necessary to run the analyses, or link to a GitHub repository that contains all of these details. Do not include your entire R Markdown PDF here – just the filename(s) and their description.
   c. A workflow diagram to enable someone to re-run your analysis. This should outline the data workflow, following standard L0, L1, L2 naming – the "Step 1" "Step 2" are R scripts that change one level of data to another (you can replace these terms below with the name of the script). See this description and figure from the Environmental Data Initiative https://environmentaldatainitiative.org/dataset-design/ - if you use a GitHub repository, you would want to include your diagram there as well.
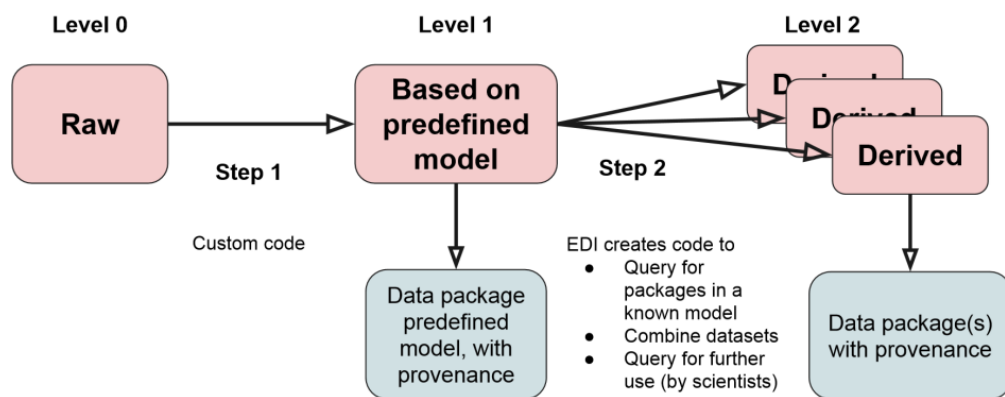

Figure 1: General workflow for data package harmonization from raw data in various formats (Level 0) into a common data model (Level 1) and use of harmonized data packages in derived Level 2 data products.

What to upload to D2L:

1. Your final paper (in Word), following the GEB format (noting exceptions above)
2. Any code, data, and workflow required to run the analysis that you referred to in your Data Accessibility Statement. Only provide the data if they are not directly read into your scripts from an online source; if the data are large, provide a link to them. Your R code should follow the FAIR guidelines so that anyone could re-run the analysis. The R code should be in one of the following formats:
   a. A GitHub repository that contains all the code with analysis and your data workflow, including any R Markdown-produced PDF(s) that read in your data, perform analyses, and produce plots. Don't forget to include a README file that is a roadmap to the repository organization. If you want the repository kept private, add me as a member to it so I can view it: plzmsu is my GitHub name.
   b. Upload R Markdown produced PDF(s) of your analysis and output that align with your data workflow.

The Final Paper is 30% of your final grade.

100 Points Total

Points Breakdown:
10   correct format for paper
10   grammar/sentence structure
40   at least 2 spatial analyses including the Data Accessibility Supplement
40   content/discussion