

## E-STAT - Course Project and Paper

**Purpose** – This project is intended to demonstrate to students the widespread use and applicability of statistical methods in practice in the context of environmental and ecological research. This project also permits students to observe the uses, abuses and limitations of statistical techniques discussed in class. Students are to either (1) read and critique two research papers that use statistical methods (called option 1), or (2) read and critique one research paper that uses statistical methods and analyze an environmental or ecological dataset (option 2).

### The Assignment –

- For option (1) above, students are to focus on two specific *different* themes of interest and to obtain **two (2)** environmental/ecological research papers in these various fields and *from different journals*. Students are requested not to choose articles from the same journal – as journals tend to repeatedly use the same statistical techniques. Choose research papers that are somewhat rich in environmental/ecological statistical methods – i.e., do not select research papers that (although possibly of interest) only give graphical analysis or use very basic or no statistical techniques. Note that many interesting research articles can be obtained via the Web – either through Loyola’s Library e-Journals or from the Archives pages of most journals themselves.
- For option (2) above, students are to obtain one environmental/ecological paper (as described above) and obtain and analyze one environmental/ecological dataset rich in statistical methods discussed in this course – summarize the dataset with graphs, etc. in your Appendix.

**Your Paper** – For option (1), your objective is to *outline, discuss and critique the statistical methods used* in each of these two research articles, and so your paper should give the larger picture of the specific field of study as well as a discussion and critique of the statistical techniques used in the research articles you have chosen. If possible, connect and contrast the articles to the degree that this is possible. All assumptions and hypotheses used in the articles must be clearly stated in your analysis (even if the articles make no mention of these). Your paper might include sections titled “Introduction” or “Background”, “Statistical Methods Employed” (for each paper), “Critique of Statistical Methods” (again for each paper), and “Conclusion.” It may help you to imagine that your audience is a classmate who has completed this course. For option (2), your objective is as above but related to the one article and one dataset.

### Important Milestones – here is the timeline:

- On or before **Friday 18<sup>th</sup> April**: Dr. O'Brien must have approved the use of each student’s two articles (or one article and dataset) – this means that it is each student's responsibility to see Dr. O'Brien so he can look through your articles to verify that the articles meet the criteria for this project.
- On or before **Tuesday 29<sup>th</sup> April**: papers are due by *noon* delivered to Dr. O'Brien.

**What to turn in** – Students must do their own work for this project, meet the milestones given above, and *for each of their two articles*, must turn in a 1-2 page typed double-spaced paper by Tuesday, 29<sup>th</sup> April 2008 by noon. Students choosing option (2) do the same for their one article and their one dataset. Student’s grades for this Project/Paper will reflect the quality of the paper you have written including the underlying analysis and critique, as well as punctuation, writing style, transitions, etc.

*Please attach a spare copy of each of the two research articles with your paper (as these will not be returned to you) so as to facilitate subsequent grading.*