**BIOL404/504 MOLECULAR EVOLUTION: TERM PROJECT**

**PROJECT DESCRIPTION**

**Option A:** *Grant proposal*: Conceptualize and propose a Molecular Evolution project that relates to your research interests. This may be a roadmap for a project you intend to complete or it may be an opportunity to explore a topic further removed from your current area of expertise.

**Option B:** *Data analysis*: Execute a Molecular Evolution project based on data from your lab (or another source). Your work must be original – you can use existing data but you must analyze it in a novel way – you cannot just redo analyses from someone else’s paper.

**Option C:** *Lab exercise design*: Design a lab for a Molecular Evolution course. Use a real dataset and real analysis tools. Remember that you can get data from many sources if you don’t have your own data (i.e., GenBank, published sources, personal communication, etc.).

**TIMELINE**

The following timeline will keep us on track for getting high quality projects completed. You may submit your “interim time point” reports earlier if you want feedback prior to the dates listed below. Keep in mind that I may give quite substantial suggestions for improvement so do not leave all the work for the last minute!

**Interim time point #1: Oct 27th:** Choose your topic and define your objectives. **Submit title and one paragraph description** of your project. Communicate clearly the *scope* of your project. If you have already chosen your analysis methods and want feedback on those, you can include that information as well.

**Interim time point #2: Nov 21st:** **Submit rough draft of your project.** This can be in whatever form is most useful for you – anything from a detailed outline to a complete draft. Please also include a reference list so I can give you feedback on whether you have read widely enough in your subject area. If you are doing project type “B” or “C” you should have completed preliminary analyses so you know what your data are likely to say.

**Final time point: Dec 12th:** **Submit final term project.**

Pace yourself and remember that you have two other exams left for the semester in this course – your *second midterm will be November 5th* and your *final exam will be December 18th.*
I expect reports to be ~5 pages in length. Your list of references plus any figures and tables are extra (they do not count toward the page limit). Your report will likely consist of the following sections:

Introduction: Explain the context for your research. Cite primary literature to discuss why your topic is interesting and how it relates to other endeavors in your field. Also provide an introduction to your study system and why it is a good system to study your chosen topic.

Objectives: Define your objectives clearly. Be explicit about the goals of your study and/or the hypotheses you are testing.

Methods: Explain the methods you are using. Make sure you are familiar enough with your chosen analytical tools to make wise decisions about your data analysis. Discuss any pitfalls you might encounter and how might deal with them. The only difference in the Methods section between project type “A” and “B”/”C” is whether you discuss the methods you will use or the methods you did use.

Results/Discussion: If you are doing project type “A” you will not have results to report but you may still want a section after your Methods section to talk about your anticipated results and what they might tell you. If you are doing project type “B” you will have more traditional Results and Discussion sections where you describe and discuss your findings. If you are doing project type “C” you will work an actual “lab” in these sections in whatever way makes the most sense to you – you can use your Methods section to present instructions to the students, and then your Results section to present questions for the students to answer, and then your Discussion section to talk about the exercise they will have completed.