## Research Grant Proposal Topic Selection (Due Friday Oct. 31)

In the final three units of the class, you will **read** a diverse selection of scientific articles in which biological questions are answered by using museum specimens. These articles will be from diverse fields, including biogeography, phylogenetics and population genetics, and environmental/chemical analysis.

You will **apply** your critical reading skills and new knowledge of scientific methodologies for using museum specimens, by writing a proposal to do your own study using natural history museum specimens to answer a research question.

You will choose three related current papers on any topic that uses museum specimens to answer a research question—*only one can be one of the papers assigned in class*. *Only one can be a review article, the others need to be primary literature*. At least two of the articles must be published since 2009. The three articles could be on totally different organismal groups, but use the same methodology. Or, the three articles may use different methodologies to study the same organismal group. These articles (plus two more you find in the next two weeks) will form the basis of your background for the proposal. They should define the field of research you are interested in and help you identify a gap in knowledge you can propose to fill.

**Tips on topic selection**:

* look up the published papers of some of the curators at major museums. Check the museum website, go to faculty/curator, then their publications.
* Go to Genbank. Look up your organism of interest, find some DNA sequences and see what papers are cited as contributing those sequences.
* Search for “museum” or “specimen” and “methodology type” (e.g. a google scholar *museum specimens stable isotopes*” search found an interesting series of studies on bat/bird/bear stable isotopes and diet/migration. Some of these are older, but clicking on “cited by” takes me to a list of more current literature that is related.
* Once you have one paper you think fits just right and makes you excited, look at the citations in that paper to help you find other related work.

**Example topics**

* Biogeography of Coopers and Sharp-shin Hawks using presence-only datasets
* Spread of West Nile Virus in avian populations in Indiana
* Stable isotope analysis of raptor diets through museum feather specimen analysis

At this point, I want to know what type of research you will propose to do and what methodology you will use. You do not have to be set on your hypothesis yet; you just need to be prepared to define your field. You will answer a series questions on a Moodle Assignment, upload your articles to Moodle and write 2-3 sentence synopsis of each article (also on Moodle). Using this, I’ll be able to give you some feedback on your direction, and let you know of any additional papers/research I know of that might be relevant.

**Your goal** in this assignment should be to explore a variety of ideas, narrow in on something exciting and communicate with me as clearly as possible so you are set up for a great proposal!