Syllabus BIO 620
Conservation Genetics

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Office hours: T, R: 8 am – 9 am
Feel free to drop by as well, I am usually in my office.

Meeting:
Lecture: M, W, F: Noon – 12:50 pm
Lab: T: 4:00 pm – 6:50 pm


The science of Conservation Biology investigates individuals and populations that have been affected by habitat loss, exploitation, and/or environmental change. That information is used to make informed decisions to ensure the survival of that species in the future. The science of Genetics is the study of inheritance and the investigation of the genes responsible for inherited traits. Put the two together and you get the science of Conservation Genetics. Conservation in the past has been addressed from a mathematical, evolutionary, or taxonomic point of view. Genetic studies supply conservation scientists and ecological managers with new insights regarding the extent of diversity among the individuals in a population. Without using genetics, we can be left conserving the wrong population, or wasting valuable resources on a population that isn't endangered! This course will be run in two parts. The lecture portion of the course will be devoted to lectures (surprise, surprise) relating to the use of population genetics in conservation and the application of various molecular markers. The laboratory portion of the course will be devoted to learning DNA extractions, PCR reactions, microsatellite analysis, DNA sequencing, and restriction digest analysis. In addition, we will cover using the computer programs required to analyze the molecular data. The last portion of the lab is devoted to group projects. The groups will write up the findings from the laboratory as a paper and present these to the rest of the class. Students already working with animals for which we have primers can use those species, students lacking primers or samples from a critter of interest will be assigned a species.
WELCOME TO A GRADUATE LEVEL COURSE.

I expect each of your to perform as a graduate student. This includes doing all of the assigned reading prior to the class and being ready to discuss the material. Exams are rather extensive. You will be given two weeks to work on a take-home exam using real data. Do not put this off as you will need the entire time to analyze the data and write the report (ask previous survivors). I am not afraid of failing graduate students. I will not assign homework, you are in a graduate student class, I expect you to be doing the problems in the chapter and at the end of the chapter of your own accord. I am more than happy to talk about the questions if you can show me that you have tried to answer them.

Course Policies: I consider this course to be preparation for the “real world”, therefore, I expect you to perform as you would in a job. You would never turn in handwritten, improperly spelled, or poorly worded work at your job and I expect the same from you in this course. This philosophy applies to everything that you turn in for this course, therefore I expect everything to be typed, in proper English and spelled properly. I will hold myself to the same policy though, so you will be able to earn extra-credit throughout
the course by finding spelling or grammar mistakes. Should you find a mistake on
anything I hand out, circle it, correct it, and turn it in to me and you will receive 0.5
points extra-credit. However, should you correct something that was not incorrect you
will lose the same amount of points. The lab attendance is mandatory if you do not have
extensive experience with the technique we are dealing with that week. Failure to attend
lab without clearing it with me will result in a lowering of your course grade by 10% (one
full letter grade) per class missed.

Outside Readings: Each week students will read primary literature that can be
downloaded from the webpage. I will randomly pick one student, with replacement, who
will lead a discussion of that paper each Friday. You are expected to give a brief (10
minute maximum) summary of the paper and then engender a discussion regarding the
paper.

Grading: Students will be graded on their take home exam (25%), their final exam
(30%), their discussion participation (10%), the final paper they produce from the lab
(20%) and on the presentation of their research findings (15%)