BIOL 650 SEMINAR IN CONSERVATION GENETICS AND GENOMICS
SPRING 2018 INSTRUCTOR: SHEDLOCK
TIME: 5:30 PM-7:30 PM MONDAY
LOCATION: ROOM 201 Grice Marine Lab, Fort Johnson
OFFICE HOURS: After class time and by appointment
PREREQUISITES: None required, but undergraduate level courses such as genetics and molecular biology as well as ecology, evolution, and conservation are recommended

SCHEDULE OF PAPER PRESENTATIONS:

Week 1 – Jan 8 Introductions, goals, organizational matters

ML King Holiday No Class

Week 3 – Jan 22 A Primer of Population Genetics and Genomics Applications [*intro lecture to get everybody on the same page with basic concepts and methods*]

Week 4 – Jan 29 Wasser, PNAS / Ishengoma Cons Genet [*genetic tracking of elephant ivory, elephant genomics and conservation, socioeconomics of the elephant crisis*]

Week 5 – Feb 5 Miller, PNAS / Edwards, Curr Bio [*polar bear genomics, conservation, policy, challenges of managing hybridization*]

Week 6 – Feb 12 Gilbert, PNAS / Poinar, Sci [*the mammoth genome, cloning and endangered species recovery programs, ethics*]

Week 7 – Feb 19 Bono, Molec Ecol / Shapiro, BMC Genomics [*the genomic editing explosion*; *CRISPR critters & de-extinction*]

Week 8 – Feb 26 Moura et al ME & MBE / Isaac, PLoS One [*cetacean population genomics and environmental change*]

Week 10 – Mar 5 Bowen, Mol Ecol / Shamblin, MEPS [*sea turtle conservation genetics and genomics, setting conservation priorities*]

Week 11 – Mar 12 Fitzpatrick, PNAS [*salamander population genetics, tracking gene flow between endangered and invasive species, commercial land use and environmental law*]

Spring Break No Class

Week 12 – Mar 26 Laikre, TREE [*large scale release of plants and animals, artificial enhancement of populations, transplant experiments, genetically modified organisms*] [possible lead by Mike Denson, SC DNR]

Week 13 – Apr 2 Hauser, PNAS [*population genetic structure and management in commercial pelagic fishes, fisheries regulation*]

Week 14 – Apr 9 Yoder, PNAS / Sebastien, Molec Ecol [*Madagascar biodiversity hotspot and integrated conservation strategies*]

Week 15 – Apr 16 AMS Lecture: Predictive environmental genomics and the future of biodiversity studies in the 21st Century

Week 15 – Apr 23 Class party SUCCESS STORIES and discussion (with rituals)

Overview of format for the weekly discussions:

- All papers will be assigned cooperatively during the first week of the course.
- All PDF files of papers will be available via shared Dropbox folder
- Supplemental information and updated literature on the same topic are encouraged under the umbrella of each weekly theme. Alternate primary papers will be considered by the Instructor based only on exceptional interest in an area in which a student is actively pursuing conservation research and its appropriateness for the theme and goals of the course.
- Students should plan on presenting an introduction and overview of the paper to prime the group discussion using Powerpoint slides and the whiteboard. Students should plan to devote approx 15-20 minutes to presenting a detailed overview of their paper. Supplemental materials can be distributed via the shared Dropbox folder prior to each weekly class meeting.
- The number of weeks we do additional presentations depends on the number of students participating in the class. The Instructor may do additional presentations if the group is small.

Learning Outcomes:

- Learn how to develop an in-depth appreciation for the primary literature from a diversity of case studies employing genetic analysis and new methods of genome analysis aimed at basic research in biodiversity studies and applied problem solving in the environmental sciences.
- Learn how to cultivate a literacy in the use of next-generation genomics-enabled research design, analysis and implementation
- Learn how to hone critical and synthetic thinking, integrative research strategies and communication skills for leading discussions and presenting in-depth critical summaries of published scientific investigations
- Learn how to build a skill set for conducting informed discussion and debate regarding major issues and new developments in the modern integrative field of conservation biology.

Assessment:

The course grade is based 100% on attendance and participation. This includes conscientious contributions to presenting the readings and engaging actively and thoughtfully in discussions and adding new relevant supportive reference materials to the

cumulative course bibliography of shared resources. Individual substantive participation will be noted weekly (50% of grade)**.** Individual oral presentation and leadership of weekly discussion (50% of grade)

Grading Scale:
Grade A = Student accurately, conscientiously, and consistently assimilates material covered by assigned readings, presentations, and group discussions and communicates this material effectively for at least 90% of the weekly class activities.
Grade B = As above for 80-90% of the weekly class activities.
Grade C = As above for 60-80% of the weekly class activities.
Grade F = As above for less than 60% of the weekly class activities.

ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES

1. **Center for Student Learning:** I encourage you to utilize the Center for Student Learning's (CSL) academic support services for assistance in study strategies, speaking & writing strategies, and course content. They offer tutoring, Supplemental Instruction, study strategy appointments, and workshops. Students of all abilities have become more successful using these programs throughout their academic career and the services are available to you at no additional cost. For more information regarding these services please visit the CSL website at http://csl.cofc.edu or call (843)953-5635.
2. **Center for Disability Services (http://disabilityservices.cofc.edu/for-faculty/faqs.php)**

   The College will make reasonable accommodations for persons with documented disabilities. Students should apply for services at the Center for Disability Services/SNAP located on the first floor of the Lightsey Center, Suite 104. Students approved for accommodations are responsible for notifying me as soon as possible and for contacting me one week before accommodation is needed

ACADEMIC INTEGRITY STATEMENT

Lying, cheating, attempted cheating, and plagiarism are violations of our Honor Code that, when identified, are investigated. Each incident will be examined to determine the degree of deception involved.
Incidents where the instructor determines the student's actions are related more to a misunderstanding will be handled by the instructor. A written intervention designed to help prevent the student from repeating the error will be given to the student. The intervention, submitted by form and signed both by the instructor and the student, will be forwarded to the Dean of Students and placed in the student's file.
Cases of suspected academic dishonesty will be reported directly by the instructor and/or others having knowledge of the incident to the Dean of Students. A student found responsible by the Honor Board for academic dishonesty will receive a XXF in the

course, indicating failure of the course due to academic dishonesty. This grade will appear on the student's transcript for two years after which the student may petition for the XX to be expunged. The F is permanent. The student may also be placed on disciplinary probation, suspended (temporary removal) or expelled (permanent removal) from the College by the Honor Board.

Students should be aware that unauthorized collaboration--working together without permission-- is a form of cheating. Unless the instructor specifies that students can work together on an assignment, quiz and/or test, no collaboration during the completion of the assignment is permitted. Other forms of cheating include possessing or using an unauthorized study aid (which could include accessing information via a cell phone or computer), copying from others' exams, fabricating data, and giving unauthorized assistance. Research conducted and/or papers written for other classes cannot be used in whole or in part for any assignment in this class without obtaining prior permission from the instructor. Students can find the complete Honor Code and all related processes in the Student Handbook at http://studentaffairs.cofc.edu/honor-system/studenthandbook/index.php