**BIOL/GNET 625-001: Seminar in Genetics**

***Meiosis, Recombination, and Sex***

**Instructors:**

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**Room:** Stone Center, Room 0201

**Time:** TR 1:25 pm – 3:30 PM

**Course Target:** BIOL/GNET 625 is a seminar course intended primarily for graduate students; it fulfills the Curriculum in Genetics and Molecular Biology requirement for a seminar/journal club course. Advanced undergraduates may enroll with permission of the instructors, but must have taken BIOL 202. A previous course that includes reading and discussion of published research articles is strongly recommended, but independent research experience may suffice. *Note: This course by itself does not count as 400+-level course for the undergraduate Biology major because it is 2 credit hours; however, but it may be combined with another 1 or 2 hour seminar course to count as one 400+ course.*

**Course Goals and Key Learning Objectives:** The primary goal of this course is to develop skills in critically reading and analyzing published research articles. Articles will be chosen by the instructors. These will deal with meiosis, meiotic and mitotic recombination, and the evolution of sexual reproduction. A second goal of the course is to become familiar with some of the literature in these fields.

**Course Structure:** The course will be divided into modules. For most modules we will spend 1-2 weeks discussing articles from one laboratory. Students will lead these discussions, but everyone in class will be expected to participate. This includes explaining figures and tables to the rest of the class, talking about issues raised in the text, and asking questions. In the final week of each module, the principle investigator of that lab will visit the class (either in person or by video-conferencing) to discuss an important paper from their lab. One student will be assigned to facilitate discussion, but everyone in the class will be expected to participate. The experts participating in the course this year are listed in the schedule below (subject to change) with links to their lab homepages. The course will also have one extended module (~ 4-5 weeks) that includes an introduction to mathematical modeling of biological systems, reading literature relevant to the beam-film model of meiotic recombination, and hands-on manipulation of relevant MATLAB models.

**Grading:**

40% participation in discussions

40% leading discussion

20% final exam (oral examination based on readings from class)

Graduate student grading (H/P/L) will be based on participation and leading discussion

**Honor code:** Information, including your responsibilities as a student is outlined in the Instrument of Student Judicial Governance. Your full participation and observance of the Honor Code is expected.Students may read articles together (indeed, this is encouraged).

**Diversity Statement**: This course values the perspectives of individuals from all backgrounds reflecting the diversity of our students. We broadly define diversity to include race, gender identity, national origin, ethnicity, religion, social class, age, sexual orientation, political background, and physical and learning ability. We strive to make this classroom an inclusive space for all students.

**Syllabus Changes**: This course is dynamic, particularly because of the schedules of guest speakers, and changes in the schedule and reading content may occur.

**Course Communication**: Primary communication will occur through the Sakai site at sakai.unc.edu. Details on reading assignments will be posted along with announcements.

**Use of Course Material**: We make various course materials available to you, including PowerPoint files, lecture notes, discussion summaries, study guides and computer code. These materials are copyrighted. It is a violation of the honor code to distribute course materials outside of the classroom without written permission from the instructors. This includes depositing in fraternity or sorority files or contributing to online repositories. It is also a violation of the honor code to access or consult any course documents that may have been deposited by others. Recording of class sessions is prohibited unless explicit permission has been granted by the instructor (separate permission for each instructor). Use of cell phones during class is prohibited, except when part of a class activity. Computers are allowed, but only for taking notes or viewing PowerPoints and readings during discussion. Students caught using computers for other tasks (email, surfing, other reading, etc.) will lose computer privileges for the remainder of the semester.

**Schedule of class meetings**

Jan 11 Discussion of course expectations (no reading assignment)

Jan 18 In-class paper discussion for McVey Session

Jan 25 Guest – Mitch McVey

Feb 1 In-class paper discussion for Henderson session

Feb 8 Guest - Ian Henderson

Feb 15 Primer on Modeling (Miller or Servedio)

Feb 22 Discussion of interference literature

Mar 1 Discussion of beam-film model literature

Mar 8 Group work on MATLAB

Mar 15 NO CLASS – Spring Break

Mar 22 Groups report back on results

Mar 29 In-class paper discussion for Cohen session

Apr 5 Guest – Paula Cohen

Apr 12 In-class paper discussion for Bhalla session

Apr 19 NO CLASS – UNC Holiday

Apr 26 Guest – Needhi Bhalla