

## **BIOL/GNET 625-001: Seminar in Genetics** ***Meiosis, Recombination, and Sex***

### **Instructors:**

Greg Copenhaver  
4161 Genome Sciences  
[gcopenhaver@bio.unc.edu](mailto:gcopenhaver@bio.unc.edu)

Corbin Jones  
3159 Genome Sciences  
[cdjones@email.unc.edu](mailto:cdjones@email.unc.edu)

Jeff Sekelsky  
303 Fordham  
[sekelsky@unc.edu](mailto:sekelsky@unc.edu)

**Room:** Stone Center, Room 0201

**Time:** Fridays 1:25– 3:05 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 only 2 credit hours; however, it may be combined with another 1 or 2 hour course to count as a 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 and class visitors, and will mostly be on the topics of meiosis, recombination (meiotic and mitotic), and the evolution of sexual reproduction.

**Course Structure:** The course will be divided into six two-week modules. The first week will be discussion of an article (possibly two) from one laboratory. Students will lead these discussions, but everyone in class will be expected to participate. Participation includes explaining figures and tables to the rest of the class, talking about issues raised in the text, and rationale for and interpretation of experiments. It also involves asking questions when you don't understand something. In the second week of each module the principle investigator of that lab will visit the class by videoconferencing to discuss a paper or manuscript in preparation from their lab. These meetings begin with questions from the class. These tend to cover the visitor's career path (often not a straight line), development of the project (also often not a straight line), the writing, submission, review, and response to reviewers (again...), etc. This structure can provide unique insights into the scientific process as it actually happens. The experts participating in the course this year are listed in the schedule below (subject to change) with links to their lab homepages.

### **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.

### Schedule of class meetings

- Jan 10 Discussion of course expectations; background (no reading assignment)
- Jan 17 In-class paper discussion for Raphael Mercier session (molecular mechanisms of meiosis)
- Jan 24 Guest: [Raphael Mercier](#), Director, Dept of Chromosome Biology, Max Planck Institute
- Jan 31 In-class paper discussion for Payseur session (genetics and genomics of evolution)
- Feb 7 Guest: [Bret Payseur](#), Professor of Genetics and Medical Genetics, University of Wisconsin
- Feb 14 In-class paper discussion for Lacefield section (chromosome segregation regulatory networks)
- Feb 21 Guest: [Soni Lacefield](#), Associate Professor of Biology, Indiana University
- Feb 28 In-class paper discussion for Hoffmann session (fidelity of human female meiosis)
- Mar 6 Guest: [Eva Hoffmann](#), Professor, Center for Chromosome Stability, University of Copenhagen
- Mar 13 **NO CLASS – Spring Break**
- Mar 20 In-class paper discussion for Burgess session (chromosome pairing in zebrafish)
- Apr 5 Guest: [Sean Burgess](#), Professor of Molecular and Cellular Biology, Univ. California - Davis
- Apr 10 **NO CLASS – UNC Holiday**
- Apr 21 In-class paper discussion for Zanders session (*wtf* and meiotic drive)
- Apr 24 Guest: [SaraH Zanders](#), Assistant Investigator, Stowers Institute for Medical Research