Biology 522: Evolution Seminar Series UG (formerly Biology 675)

Thursdays 12:00-2:00 PM
Office Hours: Monday 3:00-4:00 PM (or by appointment)

Instructor: Prof. Chris Todd Hittinger (cthittinger@wisc.edu)

Fall 2016 Syllabus

Course Synopsis and Goals: The Evolution Seminar Series (ESS) features a different speaker each week that will discuss their research into some aspect of evolutionary biology. Speakers are selected by a committee that is comprised primarily of graduate student members of the J. F. Crow Institute for the Study of Evolution, not by the instructor. Reading assignments are recommended by the speaker with guidance from the instructor. Speakers come from diverse departments and backgrounds and include visitors from other institutions, graduate students, postdoctoral researchers, and professors. Undergraduate students enrolled in Biology 522 for credit will attend the hour-long seminar and participate in an hour-long roundtable discussion afterwards, usually with just the speaker and course members present.

The main goals of the course are to expose students to areas of active research in evolutionary biology, to standard research methodologies, and to both the formal scientific literature and more informal research discussions. Students will also learn what it is like to be an evolutionary biologist at various career stages and what career options exist. Critical thinking and the scientific method will be integrated throughout the course. Students will develop and practice written and oral science communication skills.

Evaluation: Grades for each assignment or week of discussion are earned on the following scale:

3.51-4.0 = A
3.01-3.50 = AB
2.51-3.00 = B
2.01-2.50 = BC
1.51-2.00 = C
1.0-1.50 = D
0-0.99 = F

Final grades are earned on the same scale but are weighted as follows: 50% participation during discussions, 40% written report, and 10% preparation and performance while moderating your week's discussion (including the written questions). At the instructor's discretion, the final grade cutoffs may be curved to be more generous once the class distribution is clear. The course's Learn@UW site will show current scores, but any curve will not be established until grades are submitted.

Participation: Each week, students will prepare for the discussion by reading the assigned paper(s) and preparing questions or comments. Students will attend both the seminar and discussion and will be evaluated based on the quality and consistency of their participation. For example, students will participate by asking the speaker questions about the talk or assigned paper, commenting on the research, or asking questions about life as a scientist. For full credit (4/4 points), you should ask ***at least two*** questions (or make comments), at least one of which must substantively address the science. Extra credit is sometimes awarded for exceptionally good questions (usually 5/4 points for that week) or attending recommended seminars on campus. Your lowest participation score for one week will be dropped (often, this is an absence, which would otherwise earn 0/4 points for that week), and your average remaining weekly participation score will be entered into the scale above. Most students tend to score best in the Participation category.

Moderating: Each student will moderate the discussion for one week. Duties include: 1) introducing yourself to the speaker after the class and inviting them to sit next to you, 2) asking the first question or making the first comment; 3) preparing extra questions or comments (at least 5 questions or comments,

which you will turn in after the discussion) in case there is a lull in the discussion; and 4) calling on participants if several people wish to talk at once. This is also a great opportunity to meet the speaker, some of whom may be willing to offer brief advice on your paper.

Written Report: After moderating, each student prepares a written summary and critique on their topic within 2 weeks (or the date of the course's final exam for students covering the last 2 topics). Email this assignment to cthittinger@wisc.edu by 11:59PM with the subject line "Biology 522 paper". The summary should place the work into a broader context, including what was known before the research (with references). The summary should also describe what questions were being addressed, how they were addressed, and what was concluded. The critique portion can cover the data in the talk, the methodology, the presentation style, the discussion, and/or other literature. A critique is your opinion of what has or has not been demonstrated, whether the presentation and discussion were effective, and why you have concluded that; it should be professional in tone and grounded in scientific reasoning. The critique portion should appear after your summary, be clearly labeled "Critique", and be less than 3 pages long.

The total length of your paper should be 6-8 pages (double-spaced, 12 pt font) and include at least 10 references that are specifically cited in the body of the text. The bibliography does not count toward the page limit. At least 5 references must be from the primary literature. A primary literature reference is a peer-reviewed journal article presenting original research, analyses, and/or data. Secondary literature references are scholarly review articles, book chapters, and specialized books. Secondary literature generally undergoes some form of peer-review, especially in the case of review articles, but it is meant to summarize and synthesize findings rather than report them for the first time. Textbooks generally are considered tertiary, contain few citations, but do undergo some form of peer-review. In rare cases, it might also be appropriate to use science journalism articles, government reports, databases, or websites. Note that these types of literature are not usually peer-reviewed and should not be used excessively (no more than 2 will count toward your 10 references). Consider trading papers with classmate to help improve your writing and arguments. The Writing Center (http://writing.wisc.edu) offers individual help with writing and workshops. Your instructor is also willing to help if you plan ahead and send outlines or drafts.

A sample paper, including grades and comments, is available on the course's Learn@UW site.

Assigned reading: All students should read the required material ***before*** attending that week's seminar and discussion. Some speakers may have also suggested additional optional material. This background reading is particularly important when preparing to moderate, and its bibliography will also provide a valuable list of potential references for the written report. PubMed searches with key terms and authors are also useful ways to find additional references. Reading assignments are listed by their PubMed ID (PMID) numbers on the spreadsheet on the Learn@UW course website, and full citations can be accessed here: http://www.ncbi.nlm.nih.gov/pubmed . You may also wish to configure your PubMed LinkOut function, use Google Scholar, or go directly to the publisher's website. Many scientific journals require subscriptions, so you will need to be on campus to access them via UW's digital subscriptions. Alternatively, in most cases, you can login to http://library.wisc.edu using your campus ID. If you have trouble downloading a paper, please contact or visit Steenbock Library. Some evolutionary biology journals are not indexed in PubMed, or the speaker may have assigned special material or draft manuscripts. When possible, a link to the website is included on the spreadsheet. If the assignment spreadsheet says "Learn@UW", the article will be made available on the Learn@UW course website under the condition that it not be redistributed, a common courtesy extended for unpublished research.