EVOLUTION (BIOL 415/615) SPRING 2015
SYLLABUS

LECTURE SCHEDULE:
Tuesday/Thursday, 11:00-12:15 pm, Mackey Science 215.

DISCUSSION SECTIONS:
- Tuesday, 1:00 to 1:50 pm, MS 227 (Section 001; TA Chris Moore)
- Tuesday, 4:00 to 4:50 pm, OSN 202 (Section 002; TA Andrew Hickey)
- Wednesday, 9:00-9:50 am, WRB 4063 (Section 003; TA Andrew Hickey)
- Wednesday, 12:00 to 12:50 pm, PE 208 (Section 004; TA Kevin Burls)
- Wednesday, 1:00 to 1:50 pm, LP 300 (Section 005; TA Kevin Burls)
- Tuesday 5:00-6:00 pm, LME 316 (Section 006; TA Chris Moore)

INSTRUCTOR:
Dr. Guy Hoelzer, FA 340; Office Hours: Tuesday & Thursday 10:00am-11:00am, or by appointment; Tel: 784-4860; personal email: hoelzer@unr.edu.

TEACHING ASSISTANTS:

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PREREQUISITES:
- BIOL 314 (Ecol. & Pop. Biol.) OR BIOL 315 (Cell Biol.)
- BIOL 300 (Genetics)
TEXTBOOK:

COURSE OVERVIEW:
Evolutionary biology is a discipline devoted to the explanation of biological diversification. This is a 4-unit, senior (BIOL 415) or graduate (BIOL 615) level course aimed at providing a comprehensive introduction to modern evolutionary biology, an exciting and important field of scientific investigation. It is the Department of Biology's capstone course for majors and its underlying philosophy is to encourage intellectual engagement and critical thinking, rather than rote memorization. Students are expected to demonstrate an advanced-level understanding of biological evolution by integrating information presented in lectures, discussion sections, the textbook and the course web site. An emphasis will be placed on the student's ability to communicate scientific information and arguments effectively.

COURSE OBJECTIVES:
This course emphasizes evolution as a process and evolutionary biology as a science that involves the interplay between observation, theory, prediction, testing and interpretation. The overarching aim is to develop an appreciation for evolution as the unifying principle in biology. This course also aims to satisfy Core Objective 13 (Integration and Synthesis) of the Silver Core Curriculum:

“Students will be able to integrate and synthesize Core knowledge, enabling them to analyze open-ended problems or complex issues.”

STUDENT LEARNING OUTCOMES:

Core Objective 13 (Integration & Synthesis)

1. Students will be able to integrate Effective Composition & Communications skills (CO1) and Critical Analysis & Use of Information (CO3) to explain and criticize papers published in the primary scientific literature.

Core Objective CO1 (Effective Composition and Communication)

2. Students will be able to produce a cogent, written scientific argument.
Core Objective CO2 (Quantitative Reasoning)

3. Students will be able to apply mathematical models to formulate relationships between different quantities.

Core Objective CO9 (Science, Technology and Society)

4. Students will be able to distinguish between sound and unsound interpretations of scientific information.

WEB CAMPUS COURSE WEBSITE:
This course, especially the Discussion Sections, will extensively utilize Web Campus. You can find the Biol 415/615 course website by logging in to WebCampus at the following URL:

<https://wcl.unr.edu/>.

The Web Campus homepage for this course displays a link to the Class Schedule, which presents the instructional plan for the full semester including reading assignments to be completed before each lecture. It also provides access to Lecture Notes (in the top panel on the left of the screen) with links to pdf versions of my PowerPoint lecture in two formats: one version will have full-page, color images of each slide, and the second version with two slides per page in gray-scale. It is recommended that you print out the relevant gray-scale pdf before each lecture, and bring it to class to facilitate note taking. The pdf files can be opened and printed using Adobe Acrobat Reader, which can be downloaded free of charge from Adobe's website (http://www.adobe.com/). Note that the Power Point lecture slides will not be a sufficient study guides for exam preparation; so do not assume that having these notes means that it is safe to skip the lectures. That would be a recipe for failure.

The My Grades tool can be used to review assignment and exam grades, which will be updated throughout the semester. Please make your TA aware of any errors you perceive in assigned scores as soon as possible.

The course webpage will also display important announcements and you will be expected to read these announcements within a few days of listing. Importantly, the course homepage will display a link to your Discussion Board, which you will use every week as part of your Discussion Section work. You
are expected to use proper grammar, rather than e-slang (e.g., an absence of capital letters), for all posts and emails.

Computers connected to both the internet and printers are available in the UNR library, and you can also connect to the course Web Campus homepage from home. If you think that internet access or skills might be a problem for you, please speak with your TA to work out a solution.

DISCUSSION SECTIONS:
The discussion sections, which meet once per week for 50 min, are designed to maximize student engagement with the course through a combination of workshops, critical thinking assignments, short lectures, and the discussion of scientific research in a small-group format. In general, topics considered in Discussion will parallel and augment topics covered in lecture. Students will gain hands on experience in the computer simulations of microevolutionary processes and will gain skills in the theory and practice of phylogenetic reconstruction. A number of discussion section meetings will be devoted to the analysis and discussion of articles published in the primary scientific literature. These exercises will provide students with an overview of the range of exciting and provocative questions that evolutionary biologists can now address as the result of the remarkable technological and theoretical advances that have taken place in the field over the last decade. You will also gain an increased understanding of the principles of experimental design and the formulation and testing of scientific hypotheses. Discussion section assignments will sharpen your ability to think critically and to communicate your criticisms in a biological context. Criticism is essentially about your viewpoint. However, critical thinking in the context of this science class must be informed by logical and/or quantitative (e.g., statistical) reasoning, rather than by unscientific bias.

Students will generally work in small groups of four to six during much of the Discussion meeting time, but the groups will frequently reassemble as a class to synthesize information and debate contentious and unresolved issues.

EXPECTATIONS:
- All students, whether registered for undergraduate or graduate credit, are required to attend lecture. Undergraduate students must also attend one of the five Discussion Sections listed above. Graduate students are required to attend a separate discussion section at a time to be arranged with the instructor during the first week of classes.
• Students will be expected to complete reading assignments and THINK about the issues BEFORE attending lecture (see Schedule below). This is important because the lectures are designed to consolidate and deepen your understanding of the material, not to introduce you to the concepts for the first time.

• Students should bring the printed lecture notes to every lecture. The pace of the lectures will not take into account time for writing down information already on the slides.

• Everyone posting on the Web Campus Discussion Board is expected to be respectful of others and communicate in a professional manner.

• You are also expected to use proper grammar, rather than e-slang (e.g., an absence of capital letters or proper punctuation), for all posts and emails.

GRADING:

Each student's grade for the course will be based on the total number of points he/she earns from: 1) lecture exams and quizzes [700 points] and 2) discussion section activities [300 points]. There will also be 5 points of extra credit awarded for completing the online course evaluation at the end of the semester.

• The lecture component of the course grade will be determined by three exams (200 pts each) and the cumulative score from frequent quizzes (100 points). To encourage the development of effective writing skills, lecture exams will include essay questions, which will be based on material that is presented in lectures, the textbook, or posted on the course website. To encourage attendance and to aid students in preparing for the exams, there will be quizzes during many lectures on the assigned reading. The dates of weekly quizzes will NOT be announced. There will be no make-up quizzes, but only the 10 best quiz scores will be counted at the end of the semester. The number of quizzes for the semester has not been determined, but students will be able to drop their lowest scores.

• The discussion section performance will consist of 300 points as follows:

1) Reports on papers from the primary literature: (140 points total) Students will submit seven short papers (20-points-each) related to the analysis of scientific articles.

2) Workshop Reports: 100 points. Two workshops will be conducted in your Discussion section require that you provide your TA with a written
report. The first two workshops involve population genetics (25 pts each), and two more workshops will involve phylogenetics (25 pts each). Each of these will be graded based on completeness, clarity, and accuracy. Your TA will describe the workshops and reporting guidelines in more detail. BIOL 615 students will complete these assignments under the guidance of the course instructor.

3) **Engagement in oral discussions: 60 points (20 points for each 1/3 semester)**. The quality of the discussion section experience will depend in large part on the level of student preparation and participation. Each student is expected to make critical comments, ask informed questions and aid in the flow of the group discussions.

- For **graduate students enrolled in BIOL 615**, the expectations for depth of discussion and performance on assignments are higher than those for undergraduates. BIOL 615 students will complete the same assignments as BIOL 415 students with the same grading structure, although the expectation for depth of understanding and clarity of communication will be greater. As there are so few 615 students enrolled in Evolution this semester (1 as this is being written), we will explore options for developing a deeper understanding of contemporary Evolutionary Biology, which may include independent reading and reporting on the primary literature and/or mentoring of 415 students.

**Lateness Policy:** *The number of points earned on an essay assignment will be reduced by 10% of the total possible number of points for each unexcused school day passed since the assignment’s due date (Saturdays and Sundays will not count). No unexcused assignments will be accepted more than 1 week late.*

**FINAL GRADES:**

Final grades will be based on a percentage of the total points as follows:

- 93 to 100% A
- 90 to 92% A-
- 87 to 89% B+
- 83 to 86% B
- 80 to 82% B-
- 77 to 79% C+
- 73 to 76% C
- 70 to 72% C-
- 67 to 69% D+
- 63 to 66% D
- 60 to 62% D-
- 0 to 59% F

A curve may be applied at the end of the semester depending on the distribution of total points accrued by students in the class.
DROPPING THE CLASS:

The final date for dropping the class is Friday, March 22, 2014. It is the student’s responsibility to officially drop the course.

PLAGIARISM:

As you will have noticed by now, students are expected to think critically and to communicate their conclusions throughout this course. This means that students must be extraordinarily careful to avoid plagiarism. Webster’s dictionary defines plagiarism as “taking ideas or writing of another and passing it off as one’s own.” Given the emphasis in the course on critical thinking and communication skills, the professor and TAs will be very wary of potential cases of plagiarism.

It is not plagiarism to report the ideas of others, or even to use their words, as long as the source is given credit. However, students should be aware that doing so does not satisfy assignments or exam questions where they are explicitly asked to provide their own, critical views. Reference to sources can be an excellent way to support one’s own view, but students should clearly distinguish between supportive sources and critical statements of their own.

ACADEMIC DISHONESTY:

Academic dishonesty is against university as well as the system community standards. Academic dishonesty is defined as: cheating, plagiarism or otherwise obtaining grades under false pretenses. Plagiarism is defined as submitting the language, ideas, thoughts or work of another as one's own; or assisting in the act of plagiarism by allowing one's work to be used in this fashion. Cheating is defined as (l) obtaining or providing unauthorized information during an examination through verbal, visual or unauthorized use of books, notes, text and other materials; (2) obtaining or providing information concerning all or part of an examination prior to that examination; (3) taking an examination for another student, or arranging for another person to take an exam in ones place; (4) altering or changing test answers after submittal for grading, grades after grades have been awarded, or other academic records once these are official.

Disciplinary procedures for incidents of academic dishonesty may involve both academic action and administrative action for behavior against the campus regulations for student conduct. The procedures involve the determination by the faculty member pursuing concerns over alleged cheating or plagiarism as to
whether administrative action is warranted, in addition to making a determination as to any academic consequence. Academic action may include: (1) cancelling the student's enrollment in the class without a grade; (2) filing a final grade of "F"; (3) awarding a failing mark on the test or paper in question; (4) requiring the student to retake the test or resubmit the paper.

EQUAL OPPORTUNITY IN EDUCATION STATEMENT:
The Department of Biology is committed to equal opportunity in education for all students, including those with documented physical disabilities or documented learning disabilities. University policy states that it is the responsibility of students with documented disabilities to contact instructors during the first week of each semester to discuss appropriate accommodations for ensuring equity in grading, classroom experiences and outside assignments. The instructor will meet with the student and staff members of the Student Services Center to formulate a written plan for appropriate accommodations, if necessary.

ACADEMIC SUCCESS SERVICES:
Your student fees cover usage of the Math Center (784-4433 or www.unr.edu/mathcenter/), Tutoring Center (784-6801 or www.unr.edu/tutoring/), and University Writing Center (784-6030 or http://www.unr.edu/writing-center). These centers support your classroom learning; it is your responsibility to take advantage of their services. Keep in mind that seeking help outside of class is the sign of a responsible and successful student.

AUDIO AND VIDEO RECORDING:
Surreptitious or covert video-taping of class or unauthorized audio recording of class is prohibited by law and by Board of Regents policy. This class may be videotaped or audio recorded only with the written permission of the instructor. In order to accommodate students with disabilities, some students may have been given permission to record class lectures and discussions. Therefore, students should understand that their comments during class may be recorded.