Overview

Scientific theories are difficult things to deal with, mainly because they not only explain the way things are, but they also restrict the way things can be. Evolutionary theory, for instance, tells us that there cannot be functional structures that spring into existence without ancestry (if there are eye structures, there had to be ancestral eye-like structures). We do not expect either to see adaptations that promote their own genetic demise (it is very unlikely that the urge to kill relatives, or to prefer mating with siblings will evolve). Similarly, adaptations that have nothing to do with fitness cannot evolve by natural selection. To make matters worse, theoretical constraints are not always obvious or clear. For instance, we are still not sure about whether or not there are such things as biological species, group level adaptations, or why should (or should not be) sexual reproduction.

One might wish to think that these are academic nuances that need not bother the researcher. But this is not the case. Science works because scientists theorize, derive predictions, and perform experiments. And only a solid understanding of a given theoretical framework can generate good hypotheses and experiments. Needless to remark also that for science to progress we need theoretical development and that the latter requires theoretical understanding. All in all, for the biologist, a solid understanding of the processes that shape life (those described in evolutionary theory) is a necessary requirement. This is why you should understand the conceptual nooks and crannies of evolutionary theory.
A (very) Tentative List of Topics to Cover

The role of models, laws, and theories in science.
Darwin’s theory
Just a theory? The Creationism/Intelligent Design Case
Understanding the concepts of:
  - Natural Selection
  - Fitness
  - Adaptation
The units of selection problem
Culture and other “evolvers.”

Support Services and Disabilities Services

A. Since this course requires a certain amount of writing, you are encouraged to use the UAF Writing Center as needed for assistance with the mechanics of writing, grammar review, etc. The Writing Center is located on the 8th floor of the Gruening Building.
B. You should also be aware that the UAF Office of Disability Services implements the Americans with Disabilities Act (ADA), and insures that UAF students have equal access to the campus and course materials. I will work with the Office of Disabilities staff (located at 203 WHIT, 474-7043) to provide reasonable accommodation to students with disabilities.
C. Students having difficulties of a personal nature that interfere with normal completion of course requirements may speak with the instructor as warranted, consult a Faculty Advisor at the UAF Academic Advising Center (Gruening Building, 5th floor), or see a counselor at the UAF Center for Health and Counseling (Whitaker Building).

Course Policies
A. Attendance: Students are expected to attend class regularly and actively participate in discussion of the assigned readings. Students having more than three unexcused absences will lose all class
participation points and may, at the discretion of the instructor, be withdrawn from the course.

B. Withdrawal: As established by the university, the last day for student-initiated and faculty-initiated withdrawals (W grade appears on academic record) is XXX. Students whose participation is determined by the instructor to be less than required by assignments due and attendance will be withdrawn from the course.

C. Incomplete Grades: Students should consult with the course instructor and/or their faculty advisor well in advance of final examination week to establish that an incomplete grade for the course is warranted. Students must have been performing minimally at “C” level and completed more than 50% of the required coursework to warrant an incomplete.

D. Late Assignments: assignments are to be submitted when due unless previous arrangement has been made with the instructor. Due dates may be extended when there are justified mitigating circumstances.

E. Office hours, or emails, are not an alternative to missed classes. You should not email me requesting a report of the class material covered, or of the homework assignments you might have missed. Emails requesting any of the above will not be answered. Any other email inquiries are welcomed and you should expect to receive a response within 48 hours.

F. Cell Phones: by coming to class you are implicitly allowing me to do two things. One, if your cell phone rings, you are allowing me to answer it. Two, if it rings a second time, you are allowing me to step on it.

G. Computers: Will only be allowed in class for note taking. If you get caught surfing the net, you are hereby allowing me to proceed to step two in point F (above).

H. Class participation: Your class participation must be structured around the conceptual frameworks discussed in this class. In other words, class participation should NOT be understood as a venue to express your opinions.

Requirements
Readings for each class will be assigned in advance. You will be expected to critically study this material before class (i.e. read it seriously enough to be able to participate in class discussions by answering and having questions regarding this material). My lectures will not repeat the reading material
but critically analyze and supplement it. Attendance to class is mandatory and class participation is highly recommended.

Text
There is no text for this course. The readings for each class will be available in advance, at the Rasmuson’s Library eRes (http://eres.uaf.edu/default.asp).

Evaluation
Three Exams (20% each for undergraduates, 15% each for graduates)
These exams will consist of short essay questions. Exams will cover:
• the reading material,
• the supplements provided during class discussions and
• the creative application of all of the above.
These exams will be about four weeks apart and refer to the material discussed in their particular (+/-) four-week period.
Final Exam (30% -- for undergraduates, 20% for graduates). This exam will cover material of the entire course.
Research Paper (35% -- only for graduates). This will be supervised by the professor - via email and office hours. Topics, readings, and a schedule for an outline, drafts, and final version must be discussed with me after the third week of classes.
Attendance & Class Participation (10%).