THE UNIVERSITY OF IOWA- DEPARTMENT OF BIOLOGY  
EVOLUTION SUBTRACK

1. Students lacking background equivalent to the following courses should enroll in these courses which could have taken as an undergraduate.

**002:131 Evolution**  
4 s.h.  
Nature, evidence, analysis, implications, molecular/genetic basis; historical record, phylogeny, speciation, adaptation, investigative methods. Prerequisites: grade of C- or higher in 002:128, and calculus or statistics. **Recommended:** a course in biochemistry.

**002:134 Ecology**  
4 s.h.  
Adaptations of organisms to their physical and biological environments; organism-environment interactions; population biology; interactions between species; ecology of communities; ecosystems; human impact on ecosystems. **Prerequisites:** 002:011 and 22M:016 or 22M:021 or 22M:025 (or equivalents).

2. At least two of the following lecture based courses:

**002:162 Population Genetics and Molecular Evolution**  
3 s.h.  
Examines the basic principles of population genetics and their application to study the forces governing variation and evolution in natural populations. Topics include selection, mutation, random genetic drift and molecular evolution with particular emphasis on human/primate variation and evolution, protein evolution and genome evolution. **Prerequisite:** grade of C- or higher in 002:128 or consent of instructor.

**002:160 Molecular Phylogenetics**  
3 s.h.  
Theory underlying phylogenetic analysis with application of these methods to molecular data sets; analysis of multigene data, organellar, and nuclear genome sequences to reconstruct the history of cells. **Prerequisite:** grade of C- or higher in 002:128 or consent of instructor.

**002:170 Bioinformatics**  
3 s.h.  
Basics of genetics and molecular biology; overview of bioinformatics and genome science, including genome projects, functional genomics, phylogenetics, proteomics, microarrays, DNA polymorphisms, data-mining algorithms; experimental methods, analytical approaches. **Prerequisite:** 002:128 or 099:120 or graduate standing or consent of instructor. Same as 055:121, 127:170.

3. During the first two years in residence, all Ph.D. students are required to take at least two 2 s.h. seminar courses with a significant writing and oral presentation component, one of which must be

**002:234 Writing in Natural Science**  
2 s.h.

and the 2nd seminar can be the following:
002:190 Topics in Evolution and Ecology

Following comprehensive examinations, Ph.D. students must take at least two additional 2 s.h. seminar courses. Seminar courses from other departments require approval by the Graduate Affairs Committee in consultation with the faculty advisor to satisfy the requirement. All M.S. candidates are required to take one 2-s.h. seminar course with a significant writing and oral presentation component. After completing the minimum requirement, students are strongly encouraged to continue to take one 1-s.h. seminar (oral presentation only) each year.