

BIOL 401 Course Profile

The course description for Biology 401 (**Evolutionary Biology**) can be [found here](#).

Generally offered in: Winter semester

Prerequisite(s): Biology 313 and 315.

Antirequisite(s): N/A

Answered by Dr. Mindi Summers

In your own words, can you give a brief summary about what this course is about?

Biology 401 explores our current scientific understanding of evolution, the history of research in evolutionary biology, and applications of evolutionary thinking to current problems. We explore how microevolutionary change within populations and macroevolutionary change over vast periods of time have contributed to and shaped the diversity of life on our planet. We also focus on three key themes: 1) Mutation, recombination, natural selection, genetic drift, and gene flow generate, retain, and eliminate genetic diversity in populations over relatively short timeframes. 2) All organisms share common ancestry. Phylogenetic thinking allows investigation of the relationships among organisms. 3) The history of life on earth is dynamic and has played out over at least the past 3.5 billion years, with evolutionary innovations and rates of speciation and extinction varying through time.

What is the main skill you want students to take away from this course?

You will gain a set of important skills as part of this course, including the ability to find, interpret, and discuss scientific understanding of evolutionary biology. Through this course, you will be able to apply your knowledge of evolution to effectively communicate with both researchers and the general public.

What aspect of the course do you think students struggle with the most?

We anticipate that many students may initially find discussing evolution difficult, so we have integrated many opportunities to practice this skill into both lectures and tutorials.

What can students do to be successful in this course besides attending lectures?

Learning new knowledge and skills requires engagement and practice, so I would recommend active-engagement in both lectures and tutorials as one of the most important things that everyone can do to learn in this course. We have designed many opportunities for you to think, solve problems, and discuss - actively doing so in real-time with others will help your learning in this course.

Does this course have a lab or tutorial component? If so, what should students expect from that component of the course?

During tutorials each week, you will be discussing articles, podcasts, and other materials about a topic in evolution. We have chosen topics where evolutionary biology thinking or research tools have been applied to current problems. As part of a team, you will also present twice during the term on the reading materials.

What do you think is the most effective way that students can prepare for an examination in the course?

Preparing for an examination will require practicing applying your knowledge to problems. Joining a study group is a great way to talk about the concepts, review in-lecture questions, and create practice problems for each other. Creating your own "practice quiz" is a great way to both review and test your knowledge and skills - and once you are done, you should feel very prepared for the course quizzes!

Aside from the textbook and lecture notes, are there any other resources that you recommend students use?

Yes! You can find additional resources listed in the course outline.

Do you have any other advice for incoming students taking this course?

Read and explore widely! Evolutionary thinking is applied to all sub-disciplines in biology, as well as many careers in science. Finding how evolutionary thinking connects to your academic, career, or personal interests, will allow you to really engage in the course more deeply - and identify ways that you will apply what you learn outside of the course.

What is your favorite part about teaching this course?

I really enjoy our discussions as part of the course - through these dialogues, I learn new things and think about many aspects of the course and being a scientist differently. I also enjoy reading the Beak of the Finch, and continue to find new take-aways each time I read it.