BCEM 341 Course Profile

The course description for BCEM 341 (**Biochemistry of Life Processes**) can be found here.

Generally offered in: Fall or Winter semesters

Prerequisite(s): CHEM 351

Antirequisite(s): Not open to majors in the Department of Biological Sciences or Natural Sciences concentrators in Biological Sciences. Credit for Biochemistry 341 and 393 will not be allowed.

Answered by Dr. Brianne Burkinshaw

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

In BCEM 341, we study the chemistry of biological molecules. We learn how the physiochemical properties of the building blocks of life, amino acids, nucleotides, carbohydrates and lipids, influence the structure and function of macromolecules in our cells. We also study some of the metabolic pathways that happen in cells, such as the breakdown of carbohydrates for energy. This course does not require a background in biological sciences so we aim to build on the prerequisite organic chemistry course, CHEM 351.

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

We would like students to be able to build on the principles of organic chemistry that they learned in CHEM 351, and be able to show how these concepts apply to biological molecules and pathways. Students will also learn basic biochemistry lab techniques, how to collect and analyze data and communicate their findings in written reports.

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

This will vary from person to person as we all have different strengths and weaknesses. In general, students will need strong writing and numeracy skills. Also, this course builds on organic chemistry concepts, so a strong background in organic chemistry is critical. Finally, we cover lots of material, so time management is very important. Fortunately we have many resources at U of C to help students build these skills. The key is to identify what you find challenging (the earlier the better!), and seek the appropriate resources to help you build those skills. If you are not sure where to find those resources, your instructor may be able to point you in the right direction.

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

Try applying the concepts we learn in class to solve practice problems. Make notes after each lecture and highlight any material that needs further clarification. Ask questions in class, by email, and during office hours. When students ask questions, it helps the instructor understand which concepts make sense to

students, and which concepts we need to spend more time on. Also consider forming a small study group, particularly with students from a different academic background than your own. For example, a student from the Chemistry program could provide insight into chemistry concepts, whereas a student from Kinesiology may provide insight into connections with life sciences. Try explaining concepts to your friends or creating practice questions for each other to solve.

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

Yes, there is only a lab. In the lab, students have the opportunity to learn the techniques used in biochemistry labs, and also apply the concepts learned in lecture to experiments. They will work with biological molecules like protein, DNA, lipids and carbohydrates and use different methods to quantify, separate and visualize these molecules.

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

The examinations cover lots of material. Start your preparations early by creating a study schedule far in advance. Break the material into smaller chunks that you can review each day. Start by reviewing your notes, then apply the concepts by doing practice questions. Read the learning objectives and create your own practice questions to test your understanding of the material.

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

Ask your instructors questions during office hours. Review any assigned practice questions from the textbook, lecture notes or Top Hat. Other students in the course are a good resource as well - form a study group.

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

Time management will be really important. Review the material regularly and keep up with the assigned reading to minimize stress before examinations. If we can reduce stress while we learn, it's easier to appreciate and enjoy the material.

What is your favorite part about teaching this course?

BCEM 341 tends to have students from various programs and in various years of study. I think because the students have diverse academic backgrounds, they tend to ask very interesting questions and bring different perspectives to the course material.