

Summary of Veterinary School minimum Biochemistry Requirements

Auburn - 3 credits

UC Davis - one semester

Colorado - 3 credits

*Cornell - one semester required, full year recommended, 4 credits

Florida - 19 credits of chemistry: CHEM111/112 (8 credits), CHEM 261/262/269 (8 credits),
BIOCHEM (3 credits)

Georgia - 3 credits

Illinois - none specified

Iowa State - 3 credits

Kansas - 3 credits

Lincoln - 3 credits

Louisiana - LSU- 3 credits

Michigan State - 3 credits

Midwestern - 3 credits

Minnesota - 3 credits

Mississippi - 3 credits

Missouri - 3 credits

North Carolina NCSU - 3 credits

Ohio - 4 credits (email from admissions, will accept minimum of Biochem 420 3 credits)

Oklahoma - 3 credits

Oregon - 1 semester

Pennsylvania – UPenn - 3 credits

Purdue - 1 semester, upper level

Tennessee - 4 credits, (not counting lab, must take 423/424)

Texas A&M - 3 credits (not counting lab)

Tufts - 3 credits

*Tuskegee - 4 credits (lab required)

Virginia-Maryland - 1 semester

Washington- 3 credits

Western - 3 credits

Wisconsin - 3 credits

Atlantic Veterinary College of PEI- none required

Dublin - 1 semester

Edinburgh - 1 semester

Glasgow - 1 semester

Guelph - 3 credits

Melbourne - 1 semester

Ross - 3 credits

St. George's - 3 credits

Your options for Biochemistry at UMass are:

1) BIOCHEM 420 3 credits

Biochemistry 420 is the 3 credit biochemistry class for non-majors and requires CHEM 250 or 261 with a grade of C- or better or current enrollment.

2) BIOCHEM 420 3 credits + BIOCHEM 421 lab 2 credits = 5 credits total.

Biochemistry 421 is the 2 credit Biochem lab for non-majors and is offered in the spring. It is not a requirement for graduation in the Pre-Vet major.

3) BIOCHEM 423 3 credits + BIOCHEM 424 3credits = 6 credits total

BIOCHEM 423 is the 3 credit biochemistry class for BMB majors. BIOCHEM 523 is the version for graduate students.

The prerequisite for BIOCHEM 423 is BIOCHEM 275 (equivalent to ANIMLSCI 200/285) and CHEM 261 + 262 with a grade of C- or better in both (or current enrollment in CHEM 262).

Most of our students take ANIMLSCI 200/285, so they are blocked from enrolling themselves in BIOCHEM 423. Dr. Telfer collect the names, SPIRE ID, and 5 digit section numbers and sends them to the biochemistry department for manual enrollment in BIOCHEM 423. Students can then enroll themselves in BIOCHEM 424.

The only reason to take Biochem 423, instead of Biochem 420, is if you wish to take a full year (6 credits) of Biochemistry. This will make you more competitive, because many vet schools require 1 semester of biochemistry, but recommend 2 semesters. However, this only helps if you can earn a reasonable grade in both BIOCHEM 423 and 424. ANIMLSCI 200/285 has been designed to prepare you for Biochemistry; your CHEM 112 grade is a good predictor for your grade in BIOCHEM 423.

BIOCHEM 420

An elementary course not for Biochemistry majors. Survey of the structure and function of biological molecules, including carbohydrates, lipids, and proteins. Emphasis on relation to other life sciences. Topics include enzymology, special properties of biological membranes, hormones, vitamins, metabolic pathways, biotransformation and molecular biology.

Prerequisite: 1 semester of organic chemistry.

BIOCHEM 421

This course is designed to provide an introductory experience to conducting experiments in a biochemistry laboratory. The course covers a broad spectrum of modern techniques and their underlying physical, chemical and biological principles. Biochemical tools and concepts are at the core of recent advances in medical/veterinary, forensic and food/agricultural sciences that have improved our lives. The main objectives of this course are for students to: become familiar with methods and instruments used in biochemistry laboratories, relate these basic biochemistry skills to a chosen field of study/interest, learn how to collect, record and analyze experimental data, present results clearly in graphic, tabular, and written formats, and perform experiments in an environment requiring teamwork. Open to ANIMLSCI, PRE-VET, HUMNUT, NUTRITN, FOODSCI seniors

BIOCHEM 423

Structure and function of biological molecules, especially proteins, lipids and carbohydrates. Important concepts include bioenergetics, biological catalysis, and metabolic pathways as interacting regulated systems.

BIOCHEM 424

An integrated presentation of the biochemistry and molecular biology of cellular interactions. Emphasis on accounting for complex cellular processes in terms of protein structure and regulation of gene expression. Topics include gene structures and techniques for studying them; replication; control of gene expression; post-translational processing; membrane associated energetics; behavior of transport systems; mechanisms of signal transduction; and interactions of cells with extracellular matrix and with other cells.