BIOMOLECULAR CHEMISTRY (BMOLCHEM)

BMOLCHEM 314 — INTRODUCTION TO HUMAN BIOCHEMISTRY
3 credits.

Lectures and conferences on introductory aspects of biological chemistry with an emphasis on providing a broad overview of both basic and clinical aspects of human biochemistry for health professionals. Enroll Info: CHEM 104 or 108 or equiv
Requisites: None
Course Designation: Breadth - Physical Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No
Last Taught: Summer 2018

BMOLCHEM 503 — HUMAN BIOCHEMISTRY
3 credits.

Lectures and conferences on basic principles of biological chemistry with emphasis on its application to the medical sciences. Enroll Info: CHEM 341 or 343 or cons inst
Requisites: None
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No
Last Taught: Spring 2014

BMOLCHEM 504 — HUMAN BIOCHEMISTRY LABORATORY
3 credits.

Introduction to basic biochemistry and molecular biology lab techniques through investigation of an enzyme involved in human metabolism. Enroll Info: None
Requisites: BIOCHEM 501, 507, 508, BMOLCHEM 503, or concurrent enrollment, or graduate/professional standing
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2019

BMOLCHEM/B M I/BIOCHEM/MATH 606 — MATHEMATICAL METHODS FOR STRUCTURAL BIOLOGY
3 credits.

A rigorous foundation for mathematical modeling of biological structures. Mathematical techniques include ordinary and partial differential equations, 3D Fourier analysis and optimization. Biological applications include protein folding, molecular dynamics, implicit solvent electrostatics, and molecular interactions. Enroll Info: None
Requisites: (MATH 234, 320, 340, or 375) and (COMP SCI 200, 300, 301, 302, or 310) or graduate/professional standing or member of the Pre-Masters Mathematics (Visiting International) Program
Course Designation: Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2016

BMOLCHEM/B M I/BIOCHEM/MATH 609 — MATHEMATICAL METHODS FOR SYSTEMS BIOLOGY
3 credits.

Provides a rigorous foundation for mathematical modeling of biological systems. Mathematical techniques include dynamical systems and differential equations. Applications to biological pathways, including understanding of bistability within chemical reaction systems, are emphasized. Enroll Info: None
Requisites: MATH 415 and (MATH 320, 340, 341, or 375) or graduate/professional standing or member of the Pre-Masters Mathematics (Visiting International) Program
Course Designation: Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2018

BMOLCHEM/CHEM 627 — METHODS AND TECHNOLOGIES FOR PROTEIN CHARACTERIZATION
2-3 credits.

This course seeks to engage students interested in chemical instrumentation and those who desire to apply proteomic technologies to current biological problems. Understanding the current proteomics landscape, the limitations of these technologies, and their practical applications are among the course learning objectives. Enroll Info: None
Requisites: Graduate standing
Course Designation: Breadth - Physical Sci. Counts toward the Natural Sci req
Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2015
BMOLCHEM/MICROBIO 668 — MICROBIOLOGY AT ATOMIC RESOLUTION
3 credits.

Three-dimensional protein structures form the basis for discussions of high resolution microbiology; how particular problems are solved with given protein architectures and chemistries and how themes of protein structure are modified and recycled. Enroll Info: Biochem (e.g. BIOCHEM 501), molecular biol (e.g. Bact 526 or 612) required, one semester of physical chem preferred
Requisites: None
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2019

BMOLCHEM 675 — ADVANCED OR SPECIAL TOPICS IN BIOMOLECULAR CHEMISTRY
1-3 credits.

Enroll Info: None
Requisites: None
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Spring 2019

BMOLCHEM 699 — SPECIAL RESEARCH PROBLEMS
1-5 credits.

Self-directed work under the supervision and guidance of an Instructor and often in conjunction with a day-to-day mentor that is a graduate student or postdoc researcher in the instructor’s group. Students normally participate in aspects of ongoing research projects. Enroll Info: None
Requisites: Consent of Instructor
Course Designation: Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Summer 2019

BMOLCHEM/BIOCHEM 701 — PROFESSIONAL RESPONSIBILITY
1 credit.

Training for the practical aspects of being a scientist. Will cover ethics, peer review, grant writing, science communication, career alternatives, paper writing, experimental design, research documentation, science funding, academic-private interface, scientific fraud, and more. Enroll Info: Admission to the IPiB grad program
Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2018

BMOLCHEM 704 — COMPREHENSIVE HUMAN BIOCHEMISTRY
5 credits.

Lectures, conferences, and lab. Comprehensive basics in the chemistry, enzymology, and metabolism of living systems, with emphasis on the biochemical aspects of function and control. Enroll Info: Org chem, physics zool. Crse open to stdnts registered in Med School
Requisites: Professional year 1 standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2015

BMOLCHEM/BIOCHEM 710 — EXPLORING BIOCHEMICAL FUNCTION OF MACROMOLECULES
2 credits.

Required for first-year IPiB graduate students, this course focuses on topics and approaches applicable to an in-depth understanding of fundamental biochemical research. Enroll Info: Graduate standing consent of instructor
Requisites: Must be a graduate student in the Integrated program in Biochemistry (IPiB) or consent of instructor
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2014

BMOLCHEM 720 — EXPERIMENTAL DESIGN AND PARADIGMS IN CELLULAR BIOCHEMISTRY AND MOLECULAR BIOLOGY
3 credits.

A literature-based course taught in module format and covering the following areas from historical to modern contexts: biochemistry of post-translational modification of proteins, model organisms, transcriptional switches, chromosome replication, and RNA in biological regulation. Enroll Info: None
Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2019

BMOLCHEM 901 — BIOMOLECULAR CHEMISTRY SEMINAR
1 credit.

Enroll Info: None
Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2018

BMOLCHEM/BIOCHEM 913 — SEMINAR-RIBOGROUP (ADVANCED)
1 credit.

Student-led discussions of RNA-related problems. Enroll Info: Biochem 603 or equiv, GENETICS 466 or equiv, cons inst
Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Spring 2019
BMOLCHEM/BIOCHEM/M M & I/MICROBIO 914 — SEMINAR-MOLECULAR BIOSCIENCES (ADVANCED)
1 credit.

During the fall semester, molecular biosciences trainees who have not achieved dissertator status will present seminars based primarily on literature related to their projects. During the spring semester, molecular biosciences trainees with dissertator status will present seminars based upon their own research. Enroll Info: None

Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Spring 2019

BMOLCHEM 990 — ADVANCED BIOMOLECULAR CHEMISTRY AND RESEARCH
1-12 credits.

Enroll Info: None
Requisites: Consent of instructor
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Summer 2019