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.

Requisites: CHEM 104 or 108 or equiv

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

BMOLCHEM 503 — HUMAN BIOCHEMISTRY
3 credits.

Lectures and conferences on basic principles of biological chemistry with emphasis on its application to the medical sciences.

Requisites: CHEM 341 or 343 or cons inst

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.

Requisites: BIOCHEM 501, 507, 508, BMOLCHEM 503, or concurrent enrollment, or graduate or 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

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

Intended to provide 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.

Requisites: (MATH 234 or 320) and (COMP SCI 301 or 302)

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.

Intended to provide 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.

Requisites: MATH 340 or 341; MATH 415, or cons inst

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

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.

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

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. g. BIOCHEM 501), molecular biol (e.g. Bact 526 or 612) required, one semester of physical chem preferred

Requisites: Biochem (e.

Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req

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

BMOLCHEM 675 — ADVANCED OR SPECIAL TOPICS IN BIOMOLECULAR CHEMISTRY
1-3 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. 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: Yes, unlimited number of completions

Last Taught: Spring 2018
BMOLCHEM 699 — SPECIAL RESEARCH PROBLEMS
1-6 credits.
Conferences.
Requisites: Consent of instructor
Course Designation: Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: Yes, unlimited number of completions

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.
Requisites: Admission to the IPiB grad program
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2017

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. Crse open to stdnts registered in Med School
Requisites: Org chem, physics zool.
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No

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.
Requisites: Graduate standing 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.
Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No

BMOLCHEM 901 — BIOMOLECULAR CHEMISTRY SEMINAR
1 credit.
Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions

BMOLCHEM/BIOCHEM 913 — SEMINAR-RIBOGROUP (ADVANCED)
1 credit.
Student-led discussions of RNA-related problems.
Requisites: Biochem 603 or equiv, GENETICS 466 or equiv; cons inst
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions

BMOLCHEM/BIOCHEM/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.
Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions

BMOLCHEM 990 — ADVANCED BIOMOLECULAR CHEMISTRY AND RESEARCH
1-12 credits.
Requisites: Consent of instructor
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No