BIOCHEMISTRY (BIOCHEM)

BIOCHEM 1 — COOPERATIVE EDUCATION/CO-OP IN BIOCHEMISTRY
1 credit.

Full-time off-campus work experience which combines classroom theory with practical knowledge of operations to provide students with a background upon which to base a professional career. Students receive credit only for the term in which they are actively enrolled and working. The same work experience may not count towards credit in Biochemistry 399.

Requisites: So st, and consent of supervising instructor and academic advisor.

Repeatable for Credit: Yes, unlimited number of completions

BIOCHEM 100 — BIOCHEMISTRY FRESHMAN SEMINAR
1 credit.

The Freshman Biochemistry Seminar will introduce freshmen to the discipline of biochemistry, to the UW Biochemistry Department, to some of the research projects the faculty are pursuing, to the University, and to the career options open to an individual with a biochemistry undergraduate degree.

Requisites: None

Repeatable for Credit: No

Last Taught: Spring 2017

BIOCHEM 104 — MOLECULAR MECHANISMS, HUMAN HEALTH & YOU
3 credits.

Students in the course will be introduced to the fundamentals of genetics and evolution, and with this foundation we will discuss "big-picture issues" in public health and epidemiology. Specifically, we will discuss the building blocks of the cell, how information is processed from DNA into protein, and how cellular processes are regulated. Current and medically relevant topics such as cancer, inflammation, infections, depression and drug addiction will provide the framework for further discussion of topics such as the regulation of gene expression and cellular metabolism. A major goal of this course is for students to learn about their own health and to be able to explore and question science articles they find in the mainstream media.

Requisites: None

Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Elementary
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No

Last Taught: Spring 2016

BIOCHEM 289 — HONORS INDEPENDENT STUDY
1-2 credits.

INTER-AG 288

Requisites: Enrolled in the CALS Honors Prgm So or Jr st.

Course Designation: Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S Honors - Honors Only Courses (H)

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Spring 2016

BIOCHEM 299 — INDEPENDENT STUDY
1-3 credits.

Requisites: Open to Fr, So or Jr st written cons inst

Course Designation: Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Fall 2017

BIOCHEM 375 — SPECIAL TOPICS
1-4 credits.

Requisites: Consent of instructor

Course Designation: L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Fall 2016

BIOCHEM 399 — COORDINATIVE INTERNSHIP/COOPERATIVE EDUCATION
1-8 credits.

Requisites: So, Jr or Sr st cons suprvsg inst, advisor, and intrshp prog coordinator

Course Designation: L&S Credit - Counts as Liberal Arts and Science credit in L&S Workplace - Workplace Experience Course

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Summer 2015

BIOCHEM 400 — STUDY ABROAD IN BIOCHEMISTRY
1-6 credits.

Provides an area equivalency for courses taken on Madison Study Abroad Programs that do not equate to existing UW courses. W.-Madison Study Abroad Program

Requisites: Current registration in a U.

Repeatable for Credit: Yes, unlimited number of completions

BIOCHEM 501 — INTRODUCTION TO BIOCHEMISTRY
3 credits.

Chemistry, nutrition, and metabolism of biological systems.

Requisites: CHEM 341 or 343 or concurrent enrollment; or graduate student

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

Repeatable for Credit: No

Last Taught: Fall 2017
BIOCHEM 507 — GENERAL BIOCHEMISTRY I
3 credits.

Chemistry of biological materials, intermediary metabolism and protein structure. First semester of a year-long sequence in biochemistry; Biochemistry 508 is offered in the spring. This course is designed and recommended for undergraduate Biochemistry majors, but others are welcome.

Requisites: CHEM 345
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
Repeatable for Credit: No
Last Taught: Fall 2017

BIOCHEM 508 — GENERAL BIOCHEMISTRY II
3-4 credits.

Biosynthesis of biological molecules, signal transduction mechanisms, chemistry and metabolism of nucleic acids, protein synthesis, and molecular and cellular biology. Honors credits available with consent of instructor

Requisites: A grade of BC or higher in BIOCHEM 507, or consent of instructor.

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
Repeatable for Credit: No
Last Taught: Spring 2017

BIOCHEM/NUTR SCI 510 — BIOCHEMICAL PRINCIPLES OF HUMAN AND ANIMAL NUTRITION
3 credits.

Lectures in nutrition for students with a substantial background in biochemistry. Emphasis on biochemical and physiological fundamentals of nutrition. Discussion of protein, fat, carbohydrate, energy, minerals and vitamins and their roles and interrelationships in nutrition and metabolism.

Requisites: (BMOLCHEM 314 or 503) or (BIOCHEM 501 or 507)
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: Fall 2017

BIOCHEM 511 — UNDERGRADUATE SEMINAR
1 credit.

Required of all senior undergraduate majors in biochemistry. Required of all senior undergrad Biochem majors

Requisites: BIOCHEM 501 or 507 508 or cons inst.
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
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2010

BIOCHEM 550 — TOPICS IN MEDICAL BIOCHEMISTRY
2 credits.

Lectures. Biochemical and molecular analysis of selected human diseases. Topics will include lipid metabolism and atherosclerosis, cell cycle regulation and oncogene function in cancer, and human immunodeficiency virus (HIV) structure, life cycle, and mechanism of acquired immunodeficiency disease syndrome (AIDS).

Requisites: Must have completed BIOCHEM 501 or BIOCHEM 507.
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 2017

BIOCHEM 551 — BIOCHEMICAL METHODS
4 credits.

Lab and student seminar. Introduction to modern biochemical laboratory techniques and current biochemical literature. Students will present a seminar based upon scientific literature that parallels experiments they will perform in lab. For advanced undergraduates and non-biochemistry graduate students.

Requisites: BIOCHEM 501 or BIOCHEM 507 or concurrent enrollment
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
Repeatable for Credit: No
Last Taught: Fall 2017

BIOCHEM/M & I 575 — BIOLOGY OF VIRUSES
2 credits.

Lecture-discussion. Broad coverage of animal virology taught at molecular level. Topics include virus structure, viral replication/lifecycle, aspects of pathogenesis and prevention.

Requisites: Biocore 301/302, or AP score of 4 or 5 and ZOOLOGY/BIOLOGY/BOTANY 151 or 152; or MMI 301
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 2017

BIOCHEM 601 — PROTEIN AND ENZYME STRUCTURE AND FUNCTION
2 credits.


Requisites: CHEM 345 and (BIOCHEM 501 or 507)
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: Fall 2017
BIOCHEM/B M I/BMOLCHEM/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

BIOCHEM/B M I/BMOLCHEM/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 - Intermediate
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 2016

BIOCHEM/GENETICS/MICROBIO 612 — PROKARYOTIC MOLECULAR BIOLOGY
3 credits.

Molecular basis of bacterial physiology and genetics with emphasis on molecular mechanisms; topics include nucleic acid-protein interactions, transcription, translation, replication, recombination, regulation of gene expression.

Requisites: Bact 370 or equiv BIOCHEM 501 or equiv, or cons inst
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
Last Taught: Fall 2017

BIOCHEM/NUTR SCI 619 — ADVANCED NUTRITION: INTERMEDIARY METABOLISM OF MACRONUTRIENTS
3 credits.

Discuss metabolic control; gastrointestinal physiology, nutrient absorption; molecular, cellular, organismal aspects of glucose transport, metabolism, regulation; fuel sensing; molecular regulation of fatty acid, lipid metabolism; cellular, organismal aspects of protein metabolism; hormonal control of metabolism; experimental approaches for studying metabolism.

Requisites: Grad st; NUTR SCI/BIOCHEM 510 or BIOCHEM 507 508 or BMOLCHEM 503 (or con reg) or cons inst
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2017

BIOCHEM/GENETICS/MD GENET 620 — EUKARYOTIC MOLECULAR BIOLOGY
3 credits.

This course focuses on the basic molecular mechanisms that regulate DNA, RNA, and protein metabolism in eukaryotic organisms. This course is intended for advanced undergraduates and first year graduate students with a firm knowledge of basic biochemistry.

Requisites: BIOCHEM 501 or 508 or graduate standing
Course Designation: Level - Intermediate
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 2017

BIOCHEM/BOTANY 621 — PLANT BIOCHEMISTRY
3 credits.

Biochemistry of photosynthesis, respiration, cell walls, and other metabolic and biosynthetic processes in plants.

Requisites: Biochem BIOCHEM 501 or 507
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 2017

BIOCHEM 624 — MECHANISMS OF ENZYME ACTION
2 credits.

Lecture. The relation of structure and kinetics to mechanisms of enzymatic catalysis; studies of specific enzymes and enzyme systems.

Requisites: BIOCHEM 501, or 507 508, or 601; CHEM 561 or 565; or cons inst (not open to Fr)
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
Repeatable for Credit: No
Last Taught: Fall 2012
**BIOCHEM 625 — MECHANISMS OF ACTION OF VITAMINS AND MINERALS**  
2 credits.

Emphasizes the importance of coenzyme and cofactors of enzymes (i.e., vitamins and minerals) in biochemistry. All aspects of the biochemistry of coenzymes will be covered, including their biosynthesis as far as is known, the biochemical reactions they catalyze, their chemical and spectroscopic properties, and the mechanisms by which they facilitate biochemical reactions.

**Requisites:** CHEM 345 and previous or concurrent enrollment in BIOCHEM 501 or 507; or 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

**Repeatable for Credit:** No

**Last Taught:** Spring 2017

**BIOCHEM/PHMCOL-M/ZOLOGY 630 — CELLULAR SIGNAL TRANSDUCTION MECHANISMS**  
3 credits.

Lecture-discussion. Comprehensive coverage of human hormones, growth factors and other mediators; emphasis on hormone action and biosynthesis, cell biology of hormone-producing cells.

**Requisites:** Intro biochem (BIOCHEM 501 or 507 508) cell biology (Biocore 303 or Zool 570 or Path750) or cons inst

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

**L&S Credit:** Counts as Liberal Arts and Science credit in L&S

**Repeatable for Credit:** No

**Last Taught:** Fall 2017

**BIOCHEM 636 — MACROMOLECULAR CRYSTALLOGRAPHY AND DYNAMICS**  
2 credits.

Provide knowledge of techniques used to obtain detailed structural and dynamic information about biological macromolecules and survey results. Techniques include x-ray diffraction, electron microscopy and molecular dynamics simulations. Designed for advanced undergraduates and beginning graduate students in the biological sciences.

**Requisites:** Concurrent or prior biochem; calc, freshman physics or equiv

**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 2012

**BIOCHEM/NUTR SCI 645 — MOLECULAR CONTROL OF METABOLISM AND METABOLIC DISEASE**  
3 credits.

Examination of various physiological states and how they affect metabolic pathways. Discussion of a number of special topics related to the unique roles of various tissues and to metabolic pathways in disease states, including adipocyte biology, beta-cell biology, epigenetics, inflammation, and aging related diseases.

**Requisites:** BIOCHEM 501 or 508 or graduate 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

**Repeatable for Credit:** No

**Last Taught:** Fall 2017

**BIOCHEM 660 — METHODS IN BIOCHEMISTRY**  
2 credits.

Survey of modern techniques in molecular biology and biochemistry.

**Requisites:** 2 sem organic chem, intermed or adv biochem/molec biol, cons inst

**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement

**Repeatable for Credit:** Yes, unlimited number of completions

**Last Taught:** Fall 2017

**BIOCHEM/CHEM 665 — BIOPHYSICAL CHEMISTRY**  
4 credits.

Equilibrium thermodynamics, chemical kinetics and transport properties, with emphasis on solution behavior and application to noncovalent interactions of biological macromolecules in solution. For graduate students interested in the biological applications of physical chemistry. Stds must meet prereqs for CHEM 565 have some prev background in phys chem

**Requisites:** Grad st 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

**Last Taught:** Fall 2017

**BIOCHEM 681 — SENIOR HONORS THESIS**  
2-4 credits.

**Requisites:** Sr st cons inst (for hon Biochem majors only)

**Course Designation:** Level - Advanced

**L&S Credit:** Counts as Liberal Arts and Science credit in L&S

**Honors - Honors Only Courses (H)**

**Repeatable for Credit:** Yes, unlimited number of completions

**Last Taught:** Fall 2017
BIOCHEM 682 — SENIOR HONORS THESIS
2-4 credits.

Continuation of 681.
Requisites: Honors program candidacy BIOCHEM 681.
Course Designation: Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S Honors - Honors Only Courses (H)
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2017

BIOCHEM 691 — SENIOR THESIS
2 credits.

Requisites: Sr st cons inst
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
Last Taught: Fall 2017

BIOCHEM 692 — SENIOR THESIS
2 credits.

Requisites: Sr st and cons inst
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
Last Taught: Spring 2017

BIOCHEM 699 — SPECIAL PROBLEMS
1-4 credits.

Provides academic credit for research, library, and/or laboratory work under direct guidance of a faculty member. Students are responsible for arranging the work and credits with the supervising faculty member.
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
Last Taught: Fall 2017

BIOCHEM/BMOLCHEM 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

BIOCHEM/BMOLCHEM 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 applicable to an in-depth understanding of fundamental biochemical research.
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2014

BIOCHEM 711 — SEQUENCE ANALYSIS
2 credits.

Topics will include overviews of: RNA, DNA and protein structure; mechanisms of genetic change; sequence generation methods; comparison and alignment algorithms; motif recognition; 2D predictions; phylogeny calculations; database searching; discriminating coding criteria; phenotypic selection; phylogenetic reconstruction.
Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2010

BIOCHEM/GENETICS 703 — TOPICS IN EUKARYOTIC REGULATION
2 credits.

Design and interpretation of experiments addressing molecular mechanisms of eukaryotic regulation. For first year graduate students with firm knowledge of basic biochemistry, molecular biology and genetics.
Requisites: Must have taken Biochem/Genetics/Microbiology 612 and consent of instructor
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2013

BIOCHEM/CHEM 704 — CHEMICAL BIOLOGY
2 credits.

Chemistry and biology of proteins, nucleic acids and carbohydrates; application of organic chemistry to problems in cell biology, biotechnology, and biomedicine.
Requisites: BIOCHEM 501 or equiv, 1 yr org chem cons inst
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2017
BIOCHEM/MICROBIO 726 — REGULATION OF GENE EXPRESSION IN PROKARYOTES
3 credits.

An intensive examination of a limited number of systems to illustrate
the range of molecular mechanism utilized to control gene expression in
bacteria.
Requisites: Bact/Genetics/BIOCHEM/GENETICS/MICROBIO 612 or cons
Course Designation: Grad 50% - Counts toward 50% graduate coursework
requirement
Repeatable for Credit: No
Last Taught: Spring 2010

BIOCHEM 729 — ADVANCED TOPICS
1-3 credits.

Specialized subjects of current interest.
Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework
requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2017

BIOCHEM 799 — PRACTICUM IN BIOCHEMISTRY TEACHING
1-3 credits.

Requisites: Consent of instructor
Course Designation: Grad 50% - Counts toward 50% graduate coursework
requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2014

BIOCHEM 800 — PRACTICAL NUCLEAR MAGNETIC RESONANCE THEORY
2 credits.

Multiple pulse NMR, off-resonance effects, composite and shaped pulses,
product operators, coherence transfer, one- and two-dimensional NMR,
phase cycling, multiple quantum coherence, and cross relaxation.
Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework
requirement
Repeatable for Credit: No
Last Taught: Fall 2017

BIOCHEM 801 — BIOCHEMICAL APPLICATIONS OF NUCLEAR MAGNETIC
RESONANCE
2 credits.

Survey of current solution-state nuclear magnetic resonance techniques
used in biochemical research; the emphasis will be on how data are
acquired and on practical applications.
Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework
requirement
Repeatable for Credit: No
Last Taught: Spring 2016

BIOCHEM/BOTANY/GENETICS 840 — REGULATORY MECHANISMS IN
PLANT DEVELOPMENT
3 credits.

Molecular mechanisms whereby endogenous and environmental
regulatory factors control development; emphasis on stimulus perception
and primary events in the signal chain leading to modulated gene
expression and cellular development; lecture.
Requisites: BIOCHEM 501 or 601 BOTANY 500 or Biocore 301 323
Course Designation: Grad 50% - Counts toward 50% graduate coursework
requirement
Repeatable for Credit: No
Last Taught: Fall 2016

BIOCHEM/CHEM 872 — SELECTED TOPICS IN MACROMOLECULAR AND
BIOPHYSICAL CHEMISTRY
1-3 credits.

Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework
requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2017

BIOCHEM 875 — SPECIAL TOPICS
1-4 credits.

Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework
requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2010

BIOCHEM/NUTR SCI 901 — SEMINAR-NUTRITION AND METABOLISM
(ADVANCED)
1 credit.

Presentation of original research results; discussion of recent articles in
animal metabolism and nutrition.
Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework
requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2017

BIOCHEM 906 — TOPICS IN MODELING FOR BIOCHEMICAL SYSTEMS
1 credit.

Participants discuss topics relevant to predictive modeling of bioenergy
systems. Students present talks and lead brainstorming sessions
intended to sharpen their skills at cross-disciplinary communication.
Modeling microbes and plants at the genetic, molecular and systems
level is emphasized.
Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework
requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2016
BIOCHEM 909 — SEMINAR-ENZYMOLGY (ADVANCED)
1 credit.
Research reports, special topics, and reports from recent literature in enzymology and enzyme mechanisms.
Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Spring 2016

BIOCHEM 910 — SEMINAR-MOLECULAR VIROLOGY (ADVANCED)
1 credit.
Research reports, special topics, and reports from recent literature in molecular virology.
Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2017

BIOCHEM 911 — SEMINAR-MOLECULAR MECHANISMS OF HORMONE ACTION (ADVANCED)
1 credit.
To train students in evaluating published papers in regard to scientific merit and content; provide training in delivering an evaluation of this material to a large group; and to help students and faculty stay abreast of current developments in the area of steroid hormone action.
Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Spring 2009

BIOCHEM 912 — SEMINAR-MOLECULAR MECHANISMS OF DEVELOPMENT
1 credit.
Classical and current papers concerning molecular and genetic mechanisms of eukaryotic development will be presented and discussed.
Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2017

BIOCHEM/BMOLCHEM 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
Last Taught: Spring 2017

BIOCHEM/BMOLCHEM/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.
Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2017

BIOCHEM/B M E/B M I/CBE/COMP SCI/GENETICS 915 — COMPUTATION AND INFORMATICS IN BIOLOGY AND MEDICINE
1 credit.
Participants and outside speakers will discuss current research in computation and informatics in biology and medicine. This seminar is required of all CIBM program trainees.
Requisites: Consent of instructor
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2017

BIOCHEM 916 — CELLULAR MECHANISMS OF PROTEIN BIOGENESIS AND TRAFFICKING
1 credit.
Recent literature relating to cellular aspects of the regulation of protein biogenesis including protein synthesis, folding, modification, degradation and trafficking, as well as function of molecular chaperones, will be presented and discussed.
Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Spring 2016

BIOCHEM/MICROBIO 917 — REGULATION OF GENE EXPRESSION (ADVANCED SEMINAR)
1 credit.
Participants will discuss recent literature in topics related to prokaryotic and eukaryotic gene regulation. These topics include but are not limited to regulation of transcription, translation, and genome organization. Each week, one student participant will lead a critical discussion on a recent publication in the field of gene regulation. The discussion leader will explain the background materials, methodology, experimental results, and broader implications of the publication. All participants will be expected to take an active role in the discussion.
Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2017
BIOCHEM/CHEM 918 — SINGLE MOLECULE APPROACHES TO BIOLOGY
1 credit.

A combination of recent literature and original research presentations relating to the use of single molecule techniques in biochemistry including fluorescence microscopy, tethered particle motion, patch-clamping, cryo-electron microscopy, optical trapping, magnetic tweezers, and super resolution microscopy.

Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2017

BIOCHEM/CBE/MICROBIO 932 — BIOTECHNOLOGY TRAINING PROGRAM SEMINAR
1 credit.

Biotechnology Training Program trainees will present their research for critical review by audience. Required of Biotechnology Training Program trainees

Requisites: Grad st.
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2017

BIOCHEM/CHEM 945 — SEMINAR-CHEMICAL BIOLOGY (ADVANCED)
1 credit.

Recent published research in chemical biology and related areas. Intended for advanced graduate students, and required of all NIH Chemistry-Biology Interface trainees.

Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Spring 2017

BIOCHEM 990 — RESEARCH
1-12 credits.

Requisites: Consent of instructor
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2017

BIOCHEM 999 — SPECIAL PROBLEMS
1-3 credits.

Requisites: Consent of instructor
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2005