

STRUCTURAL BIOLOGY & BIOCHEMISTRY (STBB)

STBB 7608 - Molecular Interactions (3 Credits)

Provides chemical/physical basis for protein structure, folding, function & stability; presents methods/principles of protein/peptide purification & enzyme catalysis including electron transfer & mutagenesis. The role of molecular dynamics & use of molecular simulations in the investigations of protein-ligand/protein-protein interactions. Cross-listed with PHSC 7608.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

STBB 7609 - Biophysics & Spectroscopy (1.5 Credits)

This course aims to provide the students with a deep understanding of the application of different biophysical techniques to study interactions of biomolecules with each other or with small molecules. The course will supply the students with the needed tools to be able to design their own biophysical experiments to tackle a particular question.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

STBB 7610 - Biophysics and Spectroscopy Lab (1 Credit)

This course aims to provide the students hands-on training in the use of a variety of biophysical techniques for the quantification of biomolecular interactions. Must be taken with STBB 7609. Corequisite: STBB 7609

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

STBB 7620 - Advanced Genome Analysis (2 Credits)

Introduction to genomics emphasizing gaining familiarity with: analysis, utilization of genomic data. Topics: sequencing, mapping genomes, transcriptomics, human genome, evolution, genomic disorders, bioinformatics, statistics, population variation, epigenomics, proteomics, metagenomics, Crosslisted Course: HMGP 7620, CPBS 7620, and MICB 7620 microbiome analysis, functional genomics, ethics.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

STBB 7621 - Genome Analysis Workshop (3 Credits)

A tutorial of skills needed to process genomics data sets and visualize their results. Taught experimentalists with practical goals (e.g. to interpret the results of an experiment and gain biologically meaningful insight). Course is designed to closely mirror HMGP 7620. Restrictions: Students cannot have previously taken MOLB 7620. Cross listed with MOLB 7621.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

STBB 7631 - Molecular Structure A (1.5 Credits)

Gain an in-depth understanding of the underlying principles of an NMR experiment, so that student can turn NMR theory into NMR practice for their research.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

STBB 7632 - Molecular Structure B (1.5 Credits)

Understand the theory and practice of structural determination using x-ray crystallography.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

STBB 7633 - Molecular Structure C (1.5 Credits)

The purpose of this course is to provide students with a concise understanding of biological mass spectrometry and its application to study and characterize various classes of biomolecules in state of the art research. Course is 7.5 weeks.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

STBB 7634 - Molecular Structure D (1.5 Credits)

The course will provide an introduction to conceptual and practical aspects of macromolecular cryo-electron microscopy (cryo-EM). A combination of lectures and hands-on experiences will give students a working understanding of cryo-EM and its application for structural analysis of biological macromolecules.

Grading Basis: Letter Grade

Typically Offered: Fall.

STBB 7650 - Research in Structural Biology & Biochemistry (1-10 Credits)

Research work in Structural Biology and Biochemistry. 2 laboratory hours per week per credit.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

STBB 7660 - Structure Seminar (1 Credit)

Seminar series provides a forum for the presentation of scientific experiments and information in structural biology by faculty, postdoctoral fellows and graduate students.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

STBB 7670 - Independent Study in Structural Biology and Biochem (1-3 Credits)

This course is listed for the benefit of the advanced student who desires to pursue one or more topics in Structural Biology and Biochemistry in considerable depth. Supervision by a full-time faculty member is necessary.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

STBB 7807 - Structural Biol & Biophysics Core Course II (2 Credits)

Provide first year students enrolled in the core course the opportunity to obtain or review background material in the fields of structural biology and biophysics.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

STBB 8990 - Doctoral Thesis (1-10 Credits)

Doctoral thesis work in Structural Biology and Biochemistry.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.