

BIOMEDICAL SCIENCES PGM (BMSP)

BMSP 5320 Statistical Methods I

[3 credit hours]

Introduction to statistical methods with emphasis on problems in the biomedical sciences. Included are descriptive statistics, probability theory, statistical inference, experimental design and simple statistical tests.

Term Offered: Summer

BMSP 6010 Strategic Approaches to Biomedical Research

[3 credit hours]

This course is designed to introduce hypothesis generation, develop aims specific to the hypothesis, and rigorous experimental design at an early stage of the predoctoral students' training. Problem-based and active learning are used throughout this course to help students achieve higher order learning skills such as gathering data, and analyzing what is known, and then applying this knowledge to evaluate new concepts and create new research strategies.

Term Offered: Summer

BMSP 6310 Systems Pathophysiology I

[2.5 credit hours]

The course will cover the fundamentals and current research efforts in biomedical sciences, emphasizing diseases of the cardiovascular, immune, and nervous systems, as well as metabolic and infectious diseases.

Term Offered: Spring

BMSP 6320 Systems Pathophysiology II

[2.5 credit hours]

The course will cover the fundamentals and current research efforts in biomedical sciences, emphasizing diseases of the cardiovascular, immune, and nervous systems, as well as metabolic and infectious diseases.

Term Offered: Spring

BMSP 6330 Current Problems and Research Approaches in Proteins

[2 credit hours]

The course will cover principles of protein structural organization, basics of protein chemistry and structure/function relationships in proteins. Special emphasis will be given to the modern trends in protein science including research in proteomic aspects of system biology and biomedical applications of proteomics.

Term Offered: Fall

BMSP 6340 Curr Prob Res App Genes/Genom

[2 credit hours]

This course provides an introduction to major areas of current research in genetics and molecular biology. Topics include gene structure and regulation, DNA replication, recombination, repair, mutation, and quantitative genetics.

Term Offered: Fall

BMSP 6350 Cell Biology & Signaling

[3 credit hours]

The content of this course will encompass didactic lectures on current knowledge and methodological approaches in the area of fundamental cellular processes and cell communication.

Term Offered: Spring

BMSP 6360 Current Problems and Research Approaches in Cell Membranes

[2 credit hours]

This course will explore vital roles played by plasma and intracellular membranes in communication and homeostasis, and by membrane lipid/protein interactions in defining cytoarchitecture, protein sorting, excitability and synaptic transmission.

Term Offered: Fall

BMSP 6370 Recent Advances in NND Journal

[1 credit hour]

Forum for the presentation, critique, and discussion of recent primary literature important to the development of the field of biomedical science.

Term Offered: Spring

BMSP 6380 Methods in Biomedical Sciences

[2 credit hours]

This course will cover the basic principles and applications, of state-of-the-art technology in molecular biology, protein chemistry, and studies with culture cells, tissue explants and transgenic animal models.

Term Offered: Fall

BMSP 6390 Mentored Research

[1-15 credit hours]

Students will be mentored in biomedical research and will gain familiarity with research projects ongoing in graduate laboratories. May be repeated for credit.

Term Offered: Spring, Summer, Fall

BMSP 6400 BPG Intro to Mthds in Bio Sci

[1 credit hour]

Introduction to biomedical methods. Required for Bioinformatics, Proteomics and Genomics (BPG) MSBS (but not certificate) students. An abbreviated version of BMSP 638, BMSP 640 runs for first 8 weeks of Fall semester.

Term Offered: Fall

BMSP 6470 System Pathophysiology

[4 credit hours]

This course provides an understanding of fundamental processes underlying pathophysiology, which occur at the cellular and organ level and lead to impairment of physiology processes. The course is organized into 6 blocks providing knowledge on the malfunctions of physiological systems, including cardiovascular, renal, skeletal, endocrinology, immunology, neural system, and cancer, and an introduction to pharmacology and applied bioinformatics.

Term Offered: Spring

BMSP 7320 Statistical Methods I

[3 credit hours]

Introduction to statistical methods with emphasis on problems in the biomedical sciences. Included are descriptive statistics, probability theory, statistical inference, experimental design and simple statistical tests.

Term Offered: Summer

BMSP 8240 Qualifying Exam to Fellowship

[1 credit hour]

This course is designed to guide predoctoral students through the process of converting their qualifying exam into a competitive fellowship application to NIH (F31), the American Heart Association, or other external funding agencies.

Term Offered: Spring

BMSP 8250 Grant Writing Workshop

[2 credit hours]

This standard letter-grade course is designed to guide predoctoral students through the process of converting their qualifying exam into a competitive fellowship application to the NIH (F31), the American Heart Association, or other external funding agency; submission of an application is required for course completion.

Term Offered: Spring

BMSP 8310 Systems Pathophysiology I

[2.5 credit hours]

The course will cover the fundamentals and current research efforts in biomedical sciences, emphasizing diseases of the cardiovascular, immune, and nervous systems, as well as metabolic and infectious diseases.

Term Offered: Spring

BMSP 8320 Systems Pathophysiology II

[2.5 credit hours]

The course will cover the fundamentals and current research efforts in biomedical sciences, emphasizing diseases of the cardiovascular, immune, and nervous systems, as well as metabolic and infectious diseases.

Term Offered: Spring

BMSP 8330 Curr Prob Res App Protein Str

[2.5 credit hours]

The course will cover principles of protein structure/function relationships in proteins, protein folding, ligand-protein interactions and mechanisms of enzyme-catalyzed reactions. Special emphasis will be given to the present-day research.

Term Offered: Fall

BMSP 8340 Curr Prob Res App Genes/Genome

[2 credit hours]

This course provides an introduction to major areas of current research in genetics and molecular biology. Topics include gene structure and regulation, DNA replication, recombination, repair, mutation, and quantitative genetics.

Term Offered: Fall

BMSP 8350 Cell Biology & Signaling

[3 credit hours]

The content of this course will encompass didactic lectures on current knowledge and methodological approaches in the area of fundamental cellular processes and cell communication.

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[2.5 credit hours]

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Term Offered: Fall

BMSP 8380 Methods Biomedical Sciences

[2.5 credit hours]

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Term Offered: Fall

BMSP 8390 Mentored Research

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Term Offered: Spring, Summer, Fall

BMSP 8470 System Pathophysiology

[4 credit hours]

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Term Offered: Spring