

BIOMEDICAL SCIENCES (BMSC)

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BMSC 402 Statistical Methods for Biomedical Science (2-3 Credit Hours)

This course covers a broad array of statistical methods for the biological and medical sciences. Topics include descriptive statistics, non-parametric methods, categorical data analysis, and regression methods for normal, non-normal, and repeated measures data. The course focuses on the analysis of real datasets using RStudio, although no previous programming experience is assumed.

Course equivalencies: CRME420/BMSC402/MPBH404

BMSC 405 Ethics in Biomedical Sciences (1 Credit Hour)

This is an interactive seminar course where students discuss and debate ethics in biomedical sciences to foster integrity, professional character, and ethical problem solving skills.

BMSC 406 Special Topics (1-3 Credit Hours)

This course covers a specific topic in biomedical sciences. The topics can vary among different special topics courses.

BMSC 410 Biochemistry and Molecular Biology (4 Credit Hours)

This course will give students a broad understanding of the synthesis and functions of the major macromolecules that comprise a cell, and the biochemical mechanisms by which these molecules interact to contribute to cellular function.

BMSC 412 Cell Biology (4 Credit Hours)

This course will provide students with knowledge of the structure and function of cells, including the experimental foundations of cell and molecular biology.

BMSC 414 Systems Biology (3 Credit Hours)

This course will provide first year graduate students with an introduction to human physiology. Emphasis is placed on the major organ systems including the nervous, cardiovascular, pulmonary, renal, gastrointestinal and endocrine systems. Basic physiology of blood, skin and bone, as well as introductory concepts in immunology and pharmacology are also covered.

BMSC 416 Methods Biomedical Science (1 Credit Hour)

This course will familiarize first year graduate students with various methods that are used in contemporary biomedical research. It will introduce methods relevant to molecular biology, tissue culture, transgenic model systems, imaging, biochemistry, bioinformatics, electrophysiology, and immunology.

BMSC 418 Presentation skills (1 Credit Hour)

Scientists must communicate their work in numerous venues, from giving oral presentations in seminars and conferences to writing papers and grant proposals. This course is designed to train students in the design and delivery of effective oral presentations, a skill that can be readily adapted to serve as a starting point for written communications. Identify elements of an effective oral presentation 2. Deliver an effective oral presentation 3. Judge the effectiveness of oral presentations

Course equivalencies: IDIM418/BMSC418

Outcomes:

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BMSC 499 Research (2 Credit Hours)

Pre-requisites: First year PhD students will register for one research rotation in the Fall semester (2 credit hours), and two research rotations in the Spring semester (3 credit hours)
Research rotation course for first year students in the Integrated Program in Biomedical Sciences.

Outcomes:

Research course will provide laboratory experience during the first year of study, expected to culminate in the selection of a dissertation research laboratory and mentor at the end of the first year

BMSC 600 Dissertation Supervision (0 Credit Hours)

Following completion of the required 48 credit hours in the first 2 years, IPBS PhD students maintain registration via BMSC 600.

Course equivalencies: BMSC600/MIIM600/PIOL600

Outcomes:

IPBS PhD students will complete their degree work while registered for BMSC 600