Courses

BMD 150. Introduction to the Biomedical Sciences. 1 Hour.
Introduction to career paths within the Biomedical Sciences. Topics will
address student needs and interests and current trends in the Biomedical
Sciences. Emphasis will be placed on developing an individualized
educational plan based on a student’s academic and professional
interests.

BMD 201. Contemporary Issues in Biomedical Sciences. 2 Hours.
A survey of current policy topics and industry trends in biomedical
sciences, health, and medicine.

BMD 202. Survey of the Biomedical Sciences Literature. 1 Hour.
Techniques for searching, retrieving, reading, and analyzing the expert
information used by biomedical researchers and health professions
practitioners.

BMD 300. Laboratory Techniques in Biotechnology I. 2 Hours.
Basic laboratory techniques in biotechnology utilizing a lab notebook,
basic lab instruments, and making solutions. Basic molecular biology and
mammalian cell culture techniques used in studying gene regulation.
Prerequisites: CH 117 [Min Grade: C] and (CH 118 [Min Grade: C] or
CH 119 [Min Grade: C])

BMD 310. Clinical Anatomy and Histology. 4 Hours.
Exploration of the functional anatomy of the human body through gross
and microscopic studies of cells, tissues, and organ systems; survey of
body systems; correlations between the structures and functions of the
body’s various systems; association of major embryonic developmental
events with functional gross anatomy.
Prerequisites: BY 123 [Min Grade: C]

BMD 315. Clinical Physiology and Pharmacology for Health
Professions I. 4 Hours.
Basic concepts of physiology and pharmacology related to human organ
systems and drug categories; human physiological principles and their
application to pharmacology; membrane physiology, muscle physiology,
physiology of the autonomic nervous system and the cardiovascular
system; application of physiologic principles to drug pharmacokinetic and
pharmacodynamics models.
Prerequisites: CH 115 [Min Grade: C] and (CH 114 [Min Grade: C] or
CH 116 [Min Grade: C]) and CH 117 [Min Grade: C] and (CH 118 [Min
Grade: C] or CH 119 [Min Grade: C]) and BY 123 [Min Grade: C] and
BY 124 [Min Grade: C]

BMD 317. Clinical Physiology and Pharmacology for Health
Professions II. 4 Hours.
Basic concepts of physiology and pharmacology related to human
organ systems and drug categories; human physiological principles and
their application to pharmacology; renal, respiratory, gastrointestinal
and endocrine systems; application of physiological principles to drug
pharmacokinetic and pharmacodynamics models.
Prerequisites: BMD 315 [Min Grade: C]

BMD 320. Survey of Cell Biology for Health Professions. 3 Hours.
Molecular and cellular biosciences from a highly-integrated systems
perspective; principles of eukaryotic cell structure and function,
macromolecules, gene expression, signaling, division, differentiation,
energy transformation and metabolism in cells; endocytosis,
intracellular transport, protein targeting, organelle biosynthesis,
protein sorting, exocytosis, cell shape, motility, and cell-to-cell interaction;
signal transduction processes and cellular functions required for cell
growth and programmed cell death.
Prerequisites: CH 115 [Min Grade: C] and (CH 114 [Min Grade: C] or
CH 116 [Min Grade: C]) and CH 117 [Min Grade: C] and (CH 118 [Min
Grade: C] or CH 119 [Min Grade: C]) and BY 123 [Min Grade: C] and
BY 124 [Min Grade: C]

BMD 330. Clinical Microbiology for Health Professions. 3 Hours.
Clinically-based study of bacteriology, parasitology, mycology, and
virology and the human host response to each; mechanisms of microbial
pathogenicity and complex interactions with the host that produce
symptoms of disease.
Prerequisites: BMD 320 [Min Grade: C]

BMD 331. Microbiology Lab for Health Professionals. 1 Hour.
Practice of laboratory safety, correct operation of a compound light
microscope, preparation and interpretation of various stains, cultivate,
isolette and identify pathogenic microorganisms, and perform and interpret
simple serologic assays.
Prerequisites: BMD 320 [Min Grade: C] and BMD 330 [Min Grade: C]

BMD 380. Research Methods and Scientific Literacy for the
Biomedical Sciences. 3 Hours.
Introduction to basic research methodology; review of statistical methods
in health professions research. Emphasis will be given to preparing
students to critically evaluate medical and scientific literature as well as
web-based materials.
Prerequisites: HCM 360 [Min Grade: C] or MA 180 [Min Grade: C]
or CM 214 [Min Grade: C] or CM 216 [Min Grade: C] or PUH 250 [Min
Grade: C]

BMD 400. Laboratory Techniques in Biotechnology II. 2 Hours.
Laboratory techniques used in biotechnology, including cloning genes
into an expression vector; transforming into E. coli; and transfection into
mammalian cells for study of gene regulation and expression.
Prerequisites: BMD 300 [Min Grade: C]

BMD 410. Clinical Biochemistry for Health Professions. 3 Hours.
Current concepts of human biochemistry and molecular biology; protein
structure and function, enzymes, intermediary metabolism, biosynthesis
of lipids, and utilization of lipids; special emphasis on the molecular basis
of inherited genetic diseases, acquired diseases, and clinically-related
biochemistry.
Prerequisites: CH 235 [Min Grade: C] or (CH 234 [Min Grade: C] and
CH 236 [Min Grade: C]) and CH 237 [Min Grade: C] and (CH 238 [Min
Grade: C] or CH 239 [Min Grade: C])

BMD 420. Pathophysiology for Health Professions. 4 Hours.
Problem-oriented study of general disease processes and the major
subdivisions of general pathology: cellular adaptations, tissue injury
and renewal, neoplasia, environmental and nutritional pathology, and
pediatric disorders; cellular alterations and inflammation, genetic,
immunological, nutritional and circulatory disorders; effects of infection,
chemical and physical agents, blood and vascular diseases, neoplasia
and aging as they apply to selected organ systems.
Prerequisites: BMD 317 [Min Grade: C]
BMD 430. Clinical Immunology for Health Professions. 3 Hours.
Basic immunology and the fundamental principles relating to the immune response in normal and disease states; antigens, antibodies, cells and structures of the immune system; process of immunity, allergies, transplantation and diseases; emphasis on the genetics, mechanisms, and regulation of the immune system in human health and disease.
Prerequisites: BMD 320 [Min Grade: C]

BMD 440. Human Genetics for Health Professions. 3 Hours.
Upper level exploration of molecular basis and clinical presentations of human genetic disorders using a systems based approach; analysis relevant to clinical diagnosis and disease monitoring; ethical and moral issues associated with gathering and use of genetic information for non-medical activities; high level predictions of genetic evolution.
Prerequisites: BY 330 [Min Grade: C] or BMD 320 [Min Grade: C]

BMD 475. Capstone Experience in the Biomedical Sciences. 2-4 Hours.
Mentored capstone project to explore an area of student interest demonstrating curriculum integration. The capstone project should culminate in a formal scholarly work. Senior Standing required.
Prerequisites: BMD 315 [Min Grade: C] and BMD 317 [Min Grade: C] and BMD 320 [Min Grade: C]

BMD 478. Special Topics in Biomedical Sciences. 1-4 Hour.
Exploration of current issues in Biomedical Sciences.

BMD 490. Directed Readings in Biomedical Sciences. 1-3 Hour.
Directed readings and/or literature review under the direction of a faculty member. Approval of faculty sponsor and program director required.

BMD 495. Practicum in Biomedical Sciences. 1-6 Hour.
Course combines the practical workplace experience gained through an internship or service learning activity with a seminar component to guide reflective assessment of the total experience. Approval of faculty sponsor and program director required.

BMD 497. Directed Biomedical Sciences Research Studies. 1-6 Hour.
Students will conduct a field, laboratory, or literary study project culminating in a formal paper and/or presentation as directed by the supervising instructor. Approval of faculty sponsor and program director required.