BIOMEDICAL SCIENCES (BMSC)

BMSC 3960. Undergraduate Honors Reading. 1-3 Credit Hours.
Prerequisites: Permission of Instructor and Permission of Honors College on the Norman Campus. May be repeated; maximum credit 6 hours. Will consist of topics designated by the instructor. The content will emphasize work not presented in other courses. Provides an opportunity for the gifted honors candidate to work with faculty at HSC.
Course Type: Lecture

BMSC 3980. Undergraduate Honors Research. 1-3 Credit Hours.
Prerequisites: Permission of Instructor and Permission of Honors College on the Norman Campus May be repeated; maximum credit 6 hours. Provides an opportunity for the gifted honors candidate from OU Norman to work on a special project with faculty at the Health Sciences Center.
Course Type: Laboratory

BMSC 4113. Advanced Studies in Biomedical Research. 3 Credit Hours.
Prerequisites: Admission into the SURE Program or permission of instructor. May be repeated; maximum credit 6 hours. Provides a nine week research program under the direct supervision of a research faculty member at The University of Oklahoma Health Sciences Center. Includes identifying a research project, development and implementation of the research methods, collection and organization of the data and a final written abstract and poster presentation. Participation in journal club and seminar required as defined by the program.
Course Type: Laboratory

BMSC 4990. Undergraduate Research. 1-3 Credit Hours.
Prerequisites: Permission of Instructor and Permission of Student's College on the Norman Campus. May be repeated; maximum credit 6 hours. This course allows undergraduate students to conduct original research that contributes to the body of knowledge in a discipline. This variable hour course can be repeated for a maximum of 6 credit hours. Students from OU Norman should enroll through the Intercampus Enrollment Office on the Norman Campus after obtaining permission of their college on the Norman Campus and the HSC Faculty member. Students from external institutions must be accepted as a Graduate College Special Student prior to enrollment.
Course Type: Laboratory

BMSC 5001. Integrity in Scientific Research. 1 Credit Hour.
Prerequisites: Permission of Instructor. This course will focus on the issues important to maintaining integrity in scientific endeavors. Topics to be discussed include ethical decision making, data collection and analysis, intellectual property, competitive pressures, technology transfer, authorship practices and human and animal studies.
Course Type: Lecture

BMSC 5002. Principles and Practice of Clinical and Translational Research. 2 Credit Hours.
Prerequisites: None This course serves as an introduction to experimental design and research methods in Clinical Investigation and will provide the student with the information and skills necessary to design and conduct a clinical research project.
Course Type: Lecture

BMSC 5011. Experimental Design and Applied Statistics. 1 Credit Hour.
Prerequisites: Complete one year of biomedical graduate education. A graduate-level course in experimental design for the biological sciences. The course will focus on generation of hypothesis, design of properly controlled experiments, and analysis of experimental data. Students will determine proper sample size, categorization of experimental groups, and statistical tests to test hypotheses.
Course Type: Lecture

BMSC 5021. Methods in Biomedical Research. 1 Credit Hour.
Prerequisites: Admission to GPIBS program or permission. A graduate level course that surveys a broad range of the most basic and most widely used techniques, protocols, assays, and technologies used in biomedical research. Students will learn the scientific jargon, basic biology, and theories associated with each technique so that students can perform and understand common research methods.
Course Type: Lecture

BMSC 5031. Laboratory Animal Use and Concepts. 1 Credit Hour.
Prerequisites: Admission to the GPIBS program or permission. A graduate level course intended to prepare students to conduct animal research during their graduate studies. Students will receive a foundation in laboratory animal science as well as an introduction to animal handling techniques. Mouse models commonly used in biomedical research will be emphasized.
Course Type: Lecture

BMSC 5102. Fundamentals of Scientific Writing. 2 Credit Hours.
Prerequisites: None Basic elements of writing are taught including keys to effective writing and organization of the writing task. Spelling, grammar, punctuation, organization, and aspects of written language and supporting materials such as a dictionary and thesaurus are reviewed. Simple exercises address dissertations and theses, abstracts, journals, and grants. (F, Sp, Su I, II, III, IV)
Course Type: Lecture

BMSC 5103. Interdisciplinary Leadership Issues I: Disabilities Services. 3 Credit Hours.
Prerequisites: Graduate Standing and permission of the instructor. Interdisciplinary course providing the foundation components of family centered services, cultural competence, interdisciplinary teaming and inclusive practices as they relate to interdisciplinary service provisions for children with or at risk for disabilities and their families, child family advocacy, research development and data issues.
Course Type: Lecture

BMSC 5113. Interdisciplinary Leadership Issues II: Disabilities Advocacy. 3 Credit Hours.
Prerequisites: Graduate standing and Permission of the instructor. Interdisciplinary course with focus on and development of interdisciplinary leadership issues including child-family advocacy service delivery systems, systems change, policy development and analysis, with or at risk for disabilities and their families, child-family legislation, ethics and funding. Based on the foundation components of family-centered services, cultural competency and inclusive practices.
Course Type: Lecture

BMSC 5202. Foundations in Biomedicine I. 2 Credit Hours.
Prerequisites: Admissions to Post-baccalaureate Research Education Program. This is the Fall semester flagship course of the Post-baccalaureate Research Education Program (PREP). It employs a literature- and discussion-based approach to introduce the fundamentals of cell and molecular biology. It highlights widely used methodology critical to biomedical research in the context of important questions in biomedicine.
Course Type: Lecture

BMSC 5221. Interdisciplinary First Year Journal Club. 1 Credit Hour.
Prerequisites: Admissions into GPIBS/Permission of Instructor. A course designed to acquaint students with critical assessment skills needed to interpret the scientific literature and present it to a peer group.
Course Type: Discussion

BMSC 5300. Interdisciplinary Special Topics. 1-3 Credit Hours.
Prerequisites: Permission of Instructor. May be repeated; maximum credit 6 hours. This course is being created in order to meet a need that occasionally arises to quickly create a course for an upcoming semester or to pilot and fine tune a course before formally submitting a final syllabus and the requisite paperwork or for a one time offering. The course will be house in the Graduate College for proper supervision. The course may be repeated but the topic must change.
Course Type: Discussion

BMSC 5302. Foundations in Biomedicine II. 2 Credit Hours.
Prerequisites: Admissions to Post-baccalaureate Research Education Program. This is the Spring semester flagship course of the Post-baccalaureate Research Education Program (PREP). It employs a literature- and discussion-based approach to introduce the biology of disease. It highlights widely used methodology critical to biomedical research in the context of important questions in biomedicine. (Sp I)
Course Type: Lecture

BMSC 6011. Integrity in Scientific Research II. 1 Credit Hour.
Prerequisites: BMSC 5001 or equivalent The course will serve as a refresher course for advanced graduate students (ie., 4+years in program) and incoming postdoctoral fellows on the topic of the responsible conduct of research. The course will underscore the importance of responsible research and the nuances of scientific integrity in research and seven other topics including social responsibility.
Course Type: Lecture

BMSC 6012. Molecular Systems I. 2 Credit Hours.
Prerequisites: Admission to GPIBS or permission of the Course Directors. The focus of this course is the structure/function relationship of proteins and nucleic acids as well as the mechanisms controlling gene expression. (F I)
Course Type: Lecture

BMSC 6042. Entrepreneurship for Science and Technology. 2 Credit Hours.
Prerequisites: None Entrepreneurship for Science and Technology provides an introduction to entrepreneurship for science and technology perspective. The course will cover innovation, prototyping, competition, customer discovery, business model, networking, funding, and legal concerns including patents and intellectual property. The course format includes weekly lectures, founder speakers, presentations, and hands-on activities. (F I, II, III, IV)
Course Type: Lecture

BMSC 6052. Cellular Systems II. 2 Credit Hours.
Prerequisites: Admission to GPIBS or permission of the Course Directors. The focus of this course is on cellular underpinnings surrounding cancer, development, tissue homeostasis, immunity and microbial pathogenesis. (F I)
Course Type: Lecture

BMSC 6100. Bioscience Interdisciplinary Laboratory Rotation. 1-4 Credit Hours.
Prerequisites: Permission of instructor. May be repeated; maximum credit 12 hours. This rotation provides an opportunity for a student to learn and experience an in-depth knowledge and appreciation for specific skills research approaches and methods within specific disciplines and multidisciplinary areas.
Course Type: Lecture

BMSC 6112. Molecular Systems II. 2 Credit Hours.
Prerequisites: Admission GPIBS or permission of the Course Directors. This course focuses on the molecular underpinnings of cellular function including small molecule and protein transport/processing within the cell. (F I)
Course Type: Lecture

BMSC 6152. Cellular Systems I. 2 Credit Hours.
Prerequisites: Admissions to GPIBS or permission from the Course Directors. The focus of the course is on cell signaling pathways, cell division, and cell death mechanisms. (F I)
Course Type: Lecture

BMSC 6202. Preparing Future Faculty - Instructional Methods. 2 Credit Hours.
Prerequisite: Acceptance into the Interdisciplinary Preparing Future Faculty Program. This course will acquaint students with the full range of faculty roles and responsibilities related to university teaching. The course provides a didactic background in instructional methods and content and includes the theoretical and applied material addressing university structure and governance, the elements of effective teaching, and the institutional resources for teaching. Students will be required to develop appropriate course objectives, to deliver organized lectures, and to communicate effectively in verbal, written, and visual modalities.
Course Type: Lecture

BMSC 6220. Biomedical Sciences Teaching Practicum. 1-2 Credit Hours.
Prerequisites: Completion of qualifying exam, BMSC 6012, 6112, 6152, 6052, instructor permission. This course provides biomedical PhD students with supervised teaching experiences, provides introductory didactic content on best teaching practices, and involves critical reviews of teaching duties. Students must earn teaching practicum experience in at least two different courses. (F; III, IV)
Course Type: Internship

BMSC 6300. PFF - Supervised Teaching Experience. 2-3 Credit Hours.
Prerequisites: Student must have successfully completed BMSC 6202-Instructional Methods in the fall semester prior to enrollment in the spring experiential course. This course is the second of a two-course sequence focused primarily on teaching. Where the first course provides a didactic background in instructional methods, this course provides discipline-specific teaching experiences in university classrooms. Each student will work with their assigned faculty mentor who will supervise individualized teaching experiences and, where possible, invite participation in faculty research and service activities as well.
Course Type: Independent Study