

BMC-508: Techniques in Ortho Biomechanics

Orthopedic material testing methods with focus on fatigue testing, corrosion and tribological testing, sensing and measuring techniques in orthopedics, testing methods for hard and soft tissues, motion measurements in Gait Lab, regulatory aspects of orthopedic implants, use of biomedical imaging in Orthopedic Biomechanics, modeling of human joints. (2 credit hours)

CRE-562: Advanced Epidemiology

This course explores advanced epidemiological techniques that will build upon the epidemiological knowledge and skills taught in the CRE 561 Introduction to Epidemiology. The course achieves its aims through lectures, tutorials and assessments. The focus of this is on epidemiological methods with an emphasis on causality in epidemiologic research, theoretical considerations and interpretations of findings. Objectives: 1. Demonstrate an understanding of epidemiological theory and its application in health science. 2. Critically assess the epidemiological quality of research in a range of studies outlining the basis of methodological approach and criteria for determining the quality of the research. 3. Demonstrate sophisticated interpretation and application of epidemiological methods and principles and explain their relevance to specific study designs. 4. Analyze epidemiological data using statistical analytical software 5. Examine basic concepts of epidemiology as tools to promote the complexity of health care systems 6. Evaluate biomarker prognostic studies and multivariate prediction models. (2 credit hours)

GCC-570: Social Entrepreneurship in Health Sciences

This course nurtures the development of social entrepreneurship knowledge, attitudes and methodological skills in students in the health sciences. This course will use innovation methods from design field and will result in the learner developing a better understanding of the theoretical framework for social entrepreneurship in the health sciences and then apply knowledge to real-world situations. Course learning objectives include: understanding the theory of social entrepreneurship, understanding prior ways of utilizing social entrepreneurship to address health equity issues, understanding the entrepreneurial mindset for facilitating high impact products, programs and services, develop an empathetic understanding of local community needs and opportunities by partnering with appropriate community members, identify a current problem or opportunity the community is facing to achieve health equity, develop a community-designed and tested solution for addressing the problem or seizing the opportunity, foster rapid cycle learning using Lean Start Up principles to implement the program and evaluate its feasibility to achieve desired growth of community capacity to achieve health equity. Growth will be demonstrated through advancing the design, evaluation and sustainability of a student-led, community-based service-learning activity. (2 credit hours)

GCC-612: Cancer Biology II

This course deals with advanced levels of cancer development, detection and therapeutic interventions. Other topics include an in-depth examination of carcinogenesis, pathology, and an introduction to cancer diagnostics. (3 credit hours)

GCC-652: The Changing Nervous System

To guide student learning in how neuroplasticity occurs in the context of brain development, learning and memory, psychiatric disorders and neurological disease; from genetic, molecular, biochemical and cellular changes to circuit remodeling. (2 credit hours)

GCC-900-HF-2: Independent Study: Business of Science

This course will guide you through foundational business concepts as they relate to the science enterprise in academia and industry. It is intended to prepare masters and Ph.D. students with knowledge of business frameworks and terminology that can be applied to a broad range of scientific careers. Topics include business strategy, business development, strategic collaborations, strategy tools, and basic finance. You will work on a team to analyze a company of your choice throughout the course. Each team will research the aspects related to the business of a scientific enterprise. As part of this class, you will watch videos, listen to podcasts, complete individual and team assignments. (1 credit hour)

IMM-510: Advanced Immunology I

Introduction to immunology, with emphasis placed on the components, nature and organization of the immune system. (4 credit hours)

GCC-900-FF-3: Applications of Human-Centered Design to Planetary Health and Sustainability

This hands-on, interdisciplinary lab engages teams of students in the exploration and construction of sustainability and planetary health solutions suitable for context/community specific needs and constraints. Teams will work with project sponsors and stakeholders to identify barriers and enablers to the implementation of more environmentally friendly approaches to work and other human activity. Students will learn methods from the fields of human-centered design and systems planning to guide their development process. Students will emerge with generalizable frameworks and methods for assessing the role of context in solution utilization and in development of sustainability solutions