A. MEDICAL SCIENCES

GMS AN 722 Cellular Organization of Tissues. Prereq: consent of MMEDIC Director, Room 428, CSS. Study of the basic types of tissues, followed by application to understanding the cellular organization of organs, and the anatomical basis for their function. Emphasis is on functional morphology at the light and electron microscope levels. Basic concepts in embryology and pathology are introduced where relevant. Computer-based virtual microscopy in laboratory exercises and discussions supplements companion lectures. This course is an introductory version of MS 123 Medical Histology, specially designed to complement GMS curricula. All students are required to have a laptop computer that meets BUSM standards. Fall semester. 4 credits.

GMS BI 751 Biochemistry and Cell Biology. Prereq: Organic Chemistry and consent of MMEDIC Director, Room 428, CSS. Basic principles and concepts of medical school-level biochemistry and cell biology in a one-semester course. Topics include protein structure and function, mechanisms of enzyme action, nutrition and metabolism, membrane structure, receptor signaling, cell cycle regulation, DNA and RNA structure and function, regulation of gene expression and techniques in molecular medicine. Clinical correlations are provided throughout the course. Fall semester. 6 credits.

GMS BN 779 Beginning Basic Neurosciences. Prereq: consent of MMEDIC Director, Room 428, CSS. Fall Semester: Overview includes neurophysiology, neurochemistry, neuroanatomy, neuropsychology, neurobehavior, neuropsychopharmacology, and behavioral genetics, successful aging, dementia. Processes occurring at the cellular and physiological levels are related to known central nervous system dysfunction. Spring Semester: Review of brain function and selected topics such as schizophrenia, neurotoxicology, electrophysiology, neuroimaging, and the affects of alcohol and marijuana on the brain. This course is the same as GMS BN 778 (4 cr across 2 semesters). May not be taken concurrently with GMS BN 778. 2 cr, Fall or Spring sem.

GMS MH 703 Counseling Techniques. Prereq: consent of MMEDIC Director, Room 428, CSS. This course provides an overview of the skills and styles needed for building healthy and therapeutic helping relationships, as well as techniques specific to a variety of psychological disorders and problems with living. Emphasis is placed on experiential exercises and clinical mental health counseling-related skills-building, including interviewing and behaviors influencing the helping process. Fall semester. 3 credits.

GMS MI 713 Comprehensive Immunology. Prereq: Any biochemistry course and consent of MMEDIC Director, Room 428, CSS. Comprehensive introduction to immunologic principles and applications. Consists of interactive lectures and discussion sessions. Emphasis is on analysis and interpretation of data from primary literature. Prior coursework in genetics and biochemistry is strongly recommended. Fall semester. 4 credits.

GMS PA 600 Introduction to Pathology and Pathophysiology of Disease. Prereq: GMS FC701, FC702, FC703 or GMS BI751 & PH730 and consent of MMEDIC Director, Room 428, CSS. Lectures and interactive auto-tutorial case studies presenting the basic morphologic and functional changes associated
with cell injury and death, inflammation, response to microorganisms, atherosclerosis, cancer, and organ system pathology. Spring semester. 4 credits.

**GMS PH 730 Human Physiology A.** Prereq: consent of MMEDIC Director, Room 428, CSS. Cellular and organ physiology. Lectures and discussions examine the function of nerves, muscles, blood and the cardiovascular and digestive systems. Emphasis is placed on the regulation of organ function and on integrative aspects of human physiology. Fall Semester. 4 credits. (Students must register for GMS PH 730 and PH 731).

**GMS PH 731 Human Physiology B.** Prereq: GMS PH 730 and consent of MMEDIC Director, Room 428, CSS. Lectures, laboratories and discussions examine function and regulation of the respiratory, renal and endocrine systems with emphasis on integrative aspects. Spring semester. 4 credits. (Students must register for GMS PH 730 and PH 731).

**B. HUMANITIES/SOCIAL SCIENCES**

**CAS PH 251 Medical Ethics.** This course will survey ethical issues that arise in connection with medicine and emerging biotechnologies. It will examine topics such as the right to healthcare, research on human subjects, euthanasia, abortion, cloning, genetic selection, disabilities, and the biomedical enhancement of human capacities. Students can expect to gain not only training in the concepts and methods of moral philosophy and the logic of argumentation, but also the resources needed for assessing ethically difficult questions that healthcare professionals routinely face. Carries humanities divisional credit in CAS. This course fulfills a single unit in each of the following BU Hub areas: Philosophical Inquiry and Life's Meanings, Ethical Reasoning, Critical Thinking. Fall or Spring semester. 4 credits.

**CAS PH 452 Ethics of Health Care.** Prereq: CAS PH 350 and two other philosophy courses, or consent of instructor (PH 150 and PH 251 are recommended). Medicine and health care offer a unique opportunity to explore the nature of humanity and the world and to ask fundamental questions concerning the nature of birth, life, and death, and what it is to be a person. Readings from both classical and contemporary writings in ethics, medicine, law, and public health policy. 4 credits.

**GMS MA 605 History of Medicine and Healing in the United States.** Prereq: consent of MMEDIC Director, Room 428, CSS. This course explores the history of medical and therapeutic pluralism in the United States, beginning with the colonial period and continuing to the present. We will examine how this pluralism necessarily includes the story of American religious pluralism, the rise of biomedicine, and the changing faces of complementary and alternative medicine (CAM), while factoring in the roles of class, race, and gender. We will work with primary source materials, as well as sources from history of medicine, and medical anthropology. Spring semester. 4 credits.

**GMS MA 620 World Religions and Healing:** Prereq: consent of MMEDIC Director, Room 428, CSS. An introduction to approaches to healing integral to Hindu, Buddhist, Jewish, Christian, Muslim, African, African-descended, Latin American, Chinese, Native American traditions, and to some of the outcomes of their interactions, in relation to the experience of affliction and suffering. Draws on source materials from history, religious studies, and medical anthropology. 4 credits.

**GMS MA 630 Medical Anthropology and the Cultures of Biomedicine.** Prereq: consent of MMEDIC Director, Room 428, CSS. This course examines biomedicine as a cultural system with multiple local and national expressions worldwide, all of which have undergone changes over time. Topics will include the exploration of biomedicine as a cultural system, with cultural variations and different conceptual domains; processes of acculturation to biomedicine, the medicalization of social realities; biomedical narratives; the patient-doctor relationship (including when the physician is the patient); understandings of interventions and the meanings assigned to them; and different ways of thinking about efficacy in relation to process and
chronicity. The course will draw on ethnographic studies of biomedicine not only in the United States, but in other global settings. Spring semester. 3 credits.

**GMS MA 640 The Cultural Formation of the Clinician: Its Implications for Practice.** Prereq: consent of MMEDIC Director, Room 428, CSS. This course provides a context for exploring and reflecting on one's own cultural formation, in relation to aspects of one's identity like gender, sexual orientation, social class, race, immigration, religion, age, mental health and addiction, and disabilities. Unearned social privilege, and related blind spots toward these parts of our identities, have been shown to increase risks for related health disparities and problematic research findings. The course examines how our unconscious biases can enter our work as care providers or researchers. Offered through M.S. program in Medical Anthropology. Fall semester. 3 credits.

**GMS MA 650 Culture and Politics of Health Care Work.** Prereq: consent of MMEDIC Director, Room 428, CSS. This medical anthropology course examines the history, culture, and politics that shape health care work and organizations. Beginning with the notion of "competencies" in biomedical training, this course examines the models of professional enculturation and competition in established and emerging health professions. The course will focus on the conceptual and embodied formation of knowledge, skills, attitudes, and collaboration between professional and nonprofessional caregivers; examining in particular the discourse of "cultural competence." Readings include autobiographical and ethnographic accounts of healthcare professionals, staff, and family caregivers. Students conduct qualitative interviews with a variety of health care workers to analyze specific cultural and political contexts of care and health professional education. Spring semester. 3 credits.

**C. PUBLIC HEALTH**

**SPH BS 704 Introduction to Biostatistics.** Prereq: consent of MMEDIC Director, Room 428, CSS. This course provides an overview of biostatistical methods, and gives students the skills to perform, present, and interpret basic statistical analyses. Topics include the collection, classification, and presentation of descriptive data; the rationale of estimation and hypothesis testing; analysis of variance; analysis of contingency tables; correlation and regression analysis; multiple regression, logistic regression, and the statistical control of confounding; sample size and power considerations; survival analysis. Special attention is directed to the ability to recognize and interpret statistical procedures in articles from the current literature. Students will use the R statistical package to analyze public health related data. Fall or Spring semester. 3 credits.

**SPH EP 714 Introduction to Epidemiology.** Prereq: consent of MMEDIC Director, Room 428, CSS. Epidemiology is a discipline that assesses the magnitude of public health problems, identifies the determinants of defects, disease and injury in human populations, and guides interventions designed to control or prevent them. The goals of this course are to: (1) introduce the basic principles and methods of epidemiology; (2) demonstrate their applicability to public health and research; and (3) provide fundamental skills needed to begin to interpret and critically evaluate literature relevant to public health professionals. Topics include measures of disease frequency and association, epidemiologic study designs, bias, confounding, random error, screening and causation. Fall semester. 4 credits.

**SPH LW 740 Health and Human Rights.** Prereq: consent of MMEDIC Director, Room 428, CSS. This course focuses on health and it is closely linked to the realization of human rights. Preventable illness, infant mortality, and premature death, for example, are closely tied to societal discrimination and violation of human rights. This course explores the relationship between human rights and health by examining relevant international declarations in historical context, exploring the meaning of "human rights" and "health," and analyzing specific case studies that illuminate the problems, prospects, and potential methods of promoting health by promoting human rights on the national and international levels. Fall or Spring semester. 4 credits.
SPH PH 719 Health Systems, Law and Policy: Prereq: consent of MMEDIC Director, Room 428, CSS. This is a course about who gets what health services, when and how. Policies and laws governing what services are available and on what terms strongly influence health status at both the individual and population levels. This course examines the Constitutional, regulatory, political and socio-economic bases for the policies that determine access, quality, cost and equity in health services and population health programs. While the focus is principally on US examples, the course is structured on the World Health Organization's framework for organizing and analyzing national health systems, covering governance, financing, delivery systems, workforce, and human and other resources. The course combines intensive individual preparation for each class using both written and video materials, interactive class presentations and hands-on individual and group projects in laboratory sessions. Spring semester. 4 credits.

*Courses listed as MMEDIC modules are subject to change at the discretion of the Steering Committee for Early Assurance Programs.