

# Health Sciences, BSIS

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## Courses

### **CAPS-HCARE 1000 Concepts in Chemistry**

A one semester survey of the major topics covered in general chemistry, organic chemistry, and biochemistry. The course is intended for students pursuing a degree or certificate in clinical research management and others seeking broad coverage of chemical concepts. Does not replace general chemistry, organic chemistry, or biochemistry requirements for premedical students or others majoring in the sciences.

Credit 3 units.

### **CAPS-HCARE 1030 Introduction to Health Professions**

This course is an introduction to various healthcare professions. The course will explore a brief history and overview of the US healthcare system while giving students a survey of the various health professions available and pathways into those fields. Through career exploration, students will be provided with a framework to explore healthcare professions and focus their career goals. Students will learn through lecture, readings, videos, and visiting professionals.

Credit 3 units.

Typical periods offered: Summer 3, Spring, Fall, Summer

### **CAPS-HCARE 1060 General Chemistry II**

Continuation of General Chemistry I with consideration of oxidation-reduction, chemical equilibria, electro-chemical cells, and the chemistry of representative elements. Prerequisite: U05-105. Students desiring to satisfy lab science requirements or major in chemistry must also enroll in U05-152.

Credit 3 units.

### **CAPS-HCARE 1070 Medical Imaging of the Human Body**

A multimedia exploration of the human body via state-of-the-art imaging techniques, including CT, MRI, Ultrasound, and PET scans. The investigative challenge of diagnostic medical imaging is examined and common health issues including sports injuries, heart disease, stroke, cancer, arthritis, as well as early detection screening tests are discussed. Material is presented in a uniquely interactive and enjoyable manner.

Prereq: one year high school or entry-level college biology.

Credit 3 units.

### **CAPS-HCARE 1996 Health Care Elective**

Credit 3 units.

### **CAPS-HCARE 2001 Fundamentals of Clinical Research Management II**

This course focuses on the application of principles and theories covered in Fundamentals of Clinical Research Management I. Students will develop and complete documents for a specific assigned protocol. This will include completing institutional review board paperwork, writing an informed consent, developing source documents, and critiquing research articles. Prerequisite: Fundamentals of Clinical Research Management I or instructor permission.

Credit 3 units.

### **CAPS-HCARE 2025 Introduction to Medicinal Chemistry**

This is an introductory course covering the basic concepts of drug structure, interactions and metabolism relevant to medicinal chemistry. The course will provide an understanding of the structure and physicochemical properties of drugs and their targets and how these determine the drug's mechanism of action and the body's response. In addition, basic concepts of drug design and development will be covered. Prerequisites: A background in general chemistry is required. Knowledge of organic or biochemistry is not required. Organic and biochemistry concepts needed for an understanding of the material will be taught as part of the course.

Credit 3 units.

### **CAPS-HCARE 2041 Nutrition**

Online hybrid version of the course U29 204. This introductory course examines nutrition as an interdisciplinary science. Topics will include the chemistry, function, and metabolism of nutrients; the regulation of food intake; food habits; the digestion and absorption of nutrients; methods of determining the nutrient content of foods and nutrient requirements for humans and animals; comparative nutrition; problems of human malnutrition; the relationship of nutrition to disease; toxic materials in foodstuffs; and the economic, nutritional, and social problems involved in feeding the world's population today as well as possibilities for meeting those nutritional needs in the future.

Credit 3 units.

### **CAPS-HCARE 2400 Medical Terminology and Language**

This course provides a broad survey of the language of medicine and health terminologies. Students learn to accurately spell and define common medical terms related to major disease processes, diagnostic procedures, laboratory tests, abbreviations, drugs, and treatment modalities. Emphasis is placed on word formation, definition, and correct pronunciation.

Credit 3 units.

Typical periods offered: Summer 3, Spring, Fall, Summer

### **CAPS-HCARE 2600 Readings in Social Work: Addressing Trauma**

FOR PEP STUDENTS, ONLY. This interdisciplinary course explores both historical and contemporary research on trauma and its immediate and long-term effects. Students in this course will explore biological and psychological consequences of trauma, develop skills in differentiating forms of trauma, and evaluate contemporary research on evidence-based responses to trauma designed to support vulnerable populations and to help create trauma-informed practices in education, healthcare, and other industries.

Credit 1 unit. UColl: SSC

Typical periods offered: Spring

### **CAPS-HCARE 3002 Independent Study in Health Care**

For undergraduates. Requires completed Independent Study Proposal Form, permission of Department Coordinator and Advisor in University College

Credit 3 units.

Typical periods offered: Fall

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**CAPS-HCARE 3020 Legal Issues in Health Care Management**

This course offers an overview of the most important legal issues currently facing hospitals, physicians, and other health care organizations. We will study the Affordable Care Act, liability for data breaches under HIPAA /HITECH (the health privacy laws), False Claims Act and whistleblower suits (for Medicaid and Medicare fraud), laws governing physician-hospital relationships (the Stark Law and Anti-Kickback laws), labor and employment issues, mergers and antitrust law, medical malpractice and tort reform, and scope of practice laws.

Credit 3 units.

Typical periods offered: Spring

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**CAPS-HCARE 3025 Introduction to Public Health**

This introduction to the field of public health examines the philosophy, history, organization, functions, activities, and results of public health research and practice. Case studies include infectious and chronic diseases, mental health, maternal and reproductive health, food safety and nutrition, environmental health, and global public health. Students are encouraged to look at health issues from a systemic and population-level perspective, and to think critically about health systems and problems, especially health disparities and health care delivery to diverse populations.

Credit 3 units.

Typical periods offered: Spring

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**CAPS-HCARE 3035 Health Care Finance**

The magnitude of healthcare expenditures is a growing problem for providers and patients. This course, for current or future healthcare managers, covers fundamental tools, concepts, and applications of finance in healthcare organizations that produce cost-effective, efficient operations. We examine how expenditure control is influenced by individuals, governmental institutions, and newly formed insurance exchanges. We also study how healthcare organizations maximize revenue sources. The course explores the relation between market behavior, financial efficiency, and quality in healthcare organizations, and how these factors affect an organization's survival and growth in the changing healthcare environment.

Credit 3 units.

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**CAPS-HCARE 3046 Managing Healthcare Organizations: Clinical Perspectives**

Credit 3 units.

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**CAPS-HCARE 3048 Bioscience for Business**

This course is ideal for persons with business backgrounds that want to achieve a deeper understanding of the technologies and principals upon which their businesses depend. It will explore, at a practical and introductory level, the issues, concepts and processes of bioscience / molecular biology as related to the biotechnology industry. The course is divided into three sections; the first section, devoted to basic science, will explore Mendelian inheritance, genes, intracellular information flow related to protein synthesis, protein synthesis, and genomics and proteomics. The second section, devoted to applied science, will explore gene splicing, gene delivery, cell culture, proteins and nucleic acids as products, and commercial outsourcing. The third section, devoted to current topics, will explore stem cells, product licensing, new product forecasting, the promise of gene therapy, and genetically modified organisms as they pertain to food sources. The instructor, along with other experienced personnel, will teach the basics of biology as they relate to the biotechnology industry including techniques to produce protein and nucleic acid products. The class will explore related current topics, including licensing and methods of new product forecasting.

Credit 3 units.

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**CAPS-HCARE 3064 Healthcare Entrepreneurship**

Healthcare entrepreneurs improve the overall quality of healthcare delivery. This course introduces students to the particular characteristics of healthcare entrepreneurship, focusing on the creation, funding, and management of biotechnology and health services enterprises. Students will learn the steps involved in the conceptualization, planning, capitalization, launch, compensation, and management of an entrepreneurial healthcare venture. Students will use course principles and skills to develop an entrepreneurial business plan that addresses a real clinical problem.

Credit 3 units.

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**CAPS-HCARE 3069 Strategic Planning and Management in Health Care**

Credit 3 units.

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**CAPS-HCARE 3080 Race Matters! How Race and Racism Affect Health and Medicine**

This course grapples with the relationships among race, racism, health, and medicine, both in the United States and abroad. It examines the historical roots of medical racism, the role of medical and genetic research in constructing and deconstructing race as a biological concept, and the ways that systemic racism harms health. This course will also consider how race operates with other intersecting social and political identities (e.g., ethnicity, age, sex, gender, sexual orientation, class, disability) to influence health outcomes. Although anthropological and critical race theories will frame our learning, we will read broadly across other disciplines, including (but not limited to) sociology, the history of medicine, law, public health, and science and technology studies.

Credit 3 units.

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**CAPS-HCARE 3100 Balancing Precision Medicine and Public Health**

FOR MECC STUDENTS, ONLY. In this course, students will extend their knowledge base in basic biology in order to develop foundations in human genomics and its applications in health, wellness, medicine, and healthcare. Having a strong foundation in genomics, students will be challenged to understand, analyze, and critique the current state of precision medicine. Students will also explore its future, employing both rigorous critical analysis frameworks and creative approaches. In parallel, this course will develop foundations in public health that are rooted in history, theory, and practice. Students will be challenged to examine how precision medicine approaches might support or undermine the goals of public health and to consider the possibility of precision public health.

Credit 3 units. UColl: NSC

Typical periods offered: Fall

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**CAPS-HCARE 3105 Health Care Communications and Marketing Strategy**

This course provides an integrated approach to organizational strategy, brand development and marketing communications programs within health care organizations. We will explore the fundamental steps required to shape an organization's strategic plan: environmental scan, SWOT assessment, consumer assessment, operating assessment and the development of strategic goals and objectives. Building on this foundation, we will learn to shape an organizational brand to articulate what we stand for, what we strive for, how we express our brand, and how we structure our brand.

Credit 3 units.

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**CAPS-HCARE 3130 Strategic Planning and Management in Health Care**

Healthcare Strategic Planning and Management provides students with a framework to assess, develop, implement, and monitor strategic plans for healthcare organizations. Goals include understanding the relationship between mission, vision, values and strategic objectives; developing a plan based on organizational and environmental constraints and opportunities; creating action plans that support achievement of the plan; and measuring, monitoring, and modifying the strategic plan.

Credit 3 units.

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**CAPS-HCARE 3140 The Pandemic: Science and Society Follow-Up**

This course is an extension of The Pandemic: Science and Society (Anthro L48 3515/U69 3136). Drawing from topics covered in the first course, this course will provide further examination of the societal and environmental impacts of the COVID-19 pandemic now and in the future. This course will offer students the opportunity to reflect on and apply the knowledge and critical-thinking skills acquired in Anthro L48 3515/U69 3136 to current events as well as their own experiences regarding the global pandemic. A core component of this course is its focus on the interconnectedness of the COVID-19 pandemic to health and racial disparities, education, climate change, and the human-animal-environment interface.

Credit 1 unit.

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**CAPS-HCARE 3145 Compassion Cultivation Training**

Compassion Cultivation Training (CCT) is an 8-week educational program designed to help you cultivate compassion, strengthen your resilience, feel more connected to others, and improve your overall sense of well-being. CCT is a distillation from Tibetan Mahayana Buddhist practices for developing compassion, adapted to a secular setting. Initially developed by Stanford University scholars with support from the Dalai Lama, CCT combines traditional contemplative practices with contemporary psychology and scientific research. The program involves instruction in a series of meditation practices starting with mindfulness-based meditation. The curriculum uses modern concepts of psychology and neuroscience to understand and enhance our ability to be compassionate.

Credit 1 unit.

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**CAPS-HCARE 3155 Biomedical Politics**

This course will help life science majors and others to better understand the biomedical research enterprise in the United States. It will provide an understanding of the modern history of biomedical process, the means by which biomedical research is supported, and the responsibilities of scientists to society. A review of a number of contemporary issues will prepare both current and future scientists to face political, social and ethical challenges in the future. Guest speakers will also visit the class regularly for a brief presentation and class discussion.

Credit 3 units.

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**CAPS-HCARE 3160 Transnational Reproductive Health Issues: Meanings, Technologies and Practices**

This course covers recent scholarship on gender and reproductive health, including such issues as reproduction and the disciplinary power of the state, contested reproductive relations within families and communities, and the implications of global flows of biotechnology, population, and information for reproductive strategies at the local level. We will also explore how transnational migration and globalization have shaped reproductive health, the diverse meanings associated with reproductive processes, and decisions concerning reproduction. Reproduction will serve as a focus to illuminate the cultural politics of gender, power, and sexuality.

Credit 3 units. Art: SSC BU: BA

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**CAPS-HCARE 3199 Honors Thesis in Health Care**

For HC majors in Latin Honors - Part II of Honors Thesis. Requires signed proposal.

Credit 6 units.

Typical periods offered: Spring

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**CAPS-HCARE 3670 Lifestyle Medicine**

Lifestyle medicine is an exploration of the evidence-based lifestyle habits and practices that are key components in the prevention and treatment of disease. This course examines the scientific research that supports the concept that daily habits and actions exert a significant impact on short-term and long-term health and quality of life. Students will develop a lifestyle-practices framework through examination of five key aspects that have in impact upon health and well-being: physical activity; nutrition; sleep; stress management and positive psychology; and social connections. Students will also apply this information to specific diseases or conditions. Prereq: Gen Bio I.

Credit 3 units.

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**CAPS-HCARE 3720 Crisis Communications**

Both profit and nonprofit organizations are increasingly embroiled in controversies and crises. Consequently, demands are growing for public relations practitioners to help restore an organization's good name and reputation, along with its financial stability. In learning to construct, implement and evaluate a crisis communication plan, students will research and analyze an organizational crisis, identify the communication demands of various audiences affected by a crisis, and develop strategies and communication tools for managing a crisis.

Credit 3 units.

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**CAPS-HCARE 4023 Healthcare Entrepreneurship**

The emergence of rapid innovation and prototyping of new products and services in Healthcare has opened the door to an entirely new generation of Entrepreneurs and entrepreneurial thinkers. No longer is the healthcare ecosystem completely controlled by legacy juggernauts fueled by institutional buyers. Rather, today we have healthcare consumerism that is rapidly focusing on individuals as the industry and government work to empower greater access to care. This course will introduce students to a historical approach to entrepreneurship, and provide a framework to analyze opportunities for new product or services development in healthcare. We will explore both the complexity of the industry and expose students to the necessary fact that many times novel solutions are but a component to a holistic, multidisciplinary approach to care, and enable students to understand how their novel solutions might fit into that care ecosystem. Preliminary List of Topics: By the end of the course, students will be able to successfully write a business plan, develop and deliver an elevator pitch to potential investors, be proficient in SWOT analysis, market analysis, brand development, market penetration strategies, costing and revenue generation forecasting (pro forma development), industry alignment of innovative service or product, and in-depth critical thinking skills around building a successful business.

Credit 3 units.

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**CAPS-HCARE 4035 Neurobiology**

An extensive introduction to neurobiology. Starting with the elementary building blocks of the nervous system, neurons, the course covers development and regeneration of the nervous system, properties of neurons and glia, ionic basis of signaling and neurotransmitters, neural circuits and the generation of behavior, and brain function in health

and disease. Introduction to the latest techniques available to the modern neuroscientist. Guest speakers and discussion sessions. (Not applicable for undergraduate biology major.) Prerequisite: General Biology I or equivalent.  
Credit 3 units.

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**CAPS-HCARE 4390 Modern Genetics**

This course focuses on the concepts of Mendelian genetics, linkage analysis, gene mutation, genomics, cancer genetics, genetics of model organisms, and population genetics. We will focus on gaining experience in data analysis and experimental design and on developing problem-solving skills. Analytical thinking and the ability to integrate mathematical analysis with a firm understanding of biological events are essential to this course. Prerequisite: General Biology I.  
Credit 3 units.

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