Health Care

The Bachelor of Science in Health Care provides an academic foundation for students pursuing managerial, clinical or research careers in health care. The program includes a base of core courses that examine scientific, social, political, economic, ethical and organizational issues in health care and that also address implications for individual practice and public policy. This required core, drawn largely from Arts & Sciences, underscores the complex interdisciplinary nature of health care today and the mandate for critical thinking, contextual understanding and ethical behavior across all related fields and careers.

Grounded in these common questions and skill sets, students then pursue more specialized professional interests by selecting a concentration in either health care management or health sciences. The program equips students with an academic foundation for graduate or professional school or for work in a variety of health care professions, including hospital administration, community health, public health, biomedical research, medicine, nursing, dentistry, and physical and occupational therapy.

Website: [http://ucollege.wustl.edu/programs/undergraduate/bachelors-health-care](http://ucollege.wustl.edu/programs/undergraduate/bachelors-health-care)

Degree Requirements
Bachelor of Science in Health Care

All University College undergraduate students must satisfy the same general-education requirements ([http://bulletin.wustl.edu/undergrad/ucollege/bachelors/#degreerequirements](http://bulletin.wustl.edu/undergrad/ucollege/bachelors/#degreerequirements)).

Requirements specific to this major include the following:

**Required Core Courses:** 12 units

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<thead>
<tr>
<th>Code</th>
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<th>Units</th>
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<tbody>
<tr>
<td>Phil 233</td>
<td>Biomedical Ethics</td>
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<tr>
<td>Psych 358</td>
<td>Health Psychology</td>
<td>3</td>
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<tr>
<td>HCare 309</td>
<td>Health and Society</td>
<td>3</td>
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<tr>
<td>Anthro 3283</td>
<td>Introduction to Physical Health</td>
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**Total Units:** 12

**Health Care Management Concentration**

**Required Courses:** 24 units

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<tr>
<td>Econ 1011</td>
<td>Introduction to Microeconomics</td>
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<tr>
<td>Econ 352</td>
<td>Health Economics</td>
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<tr>
<td>Math 1011</td>
<td>Introduction to Statistics</td>
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<tr>
<td>or Math 205</td>
<td>Applied Statistics</td>
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**Health Sciences Concentration**

**Required Courses:** 11 units

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<tr>
<td>Bio 101</td>
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<td>Bio 102</td>
<td>General Biology II</td>
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<td>Bio 342</td>
<td>Introduction to Human Disease and its Scientific Basis</td>
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**Total Units:** 11

**Electives:** 12 units; at least 6 units at the 300-400 level

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<thead>
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<th>Code</th>
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<tr>
<td>Chem 105</td>
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<td>Chem 151</td>
<td>General Chemistry Laboratory I</td>
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<td>Chem 152</td>
<td>General Chemistry Laboratory II</td>
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<tr>
<td>Chem 261</td>
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<td>Chem 262</td>
<td>Organic Chemistry II with Lab</td>
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<td>Phys 211</td>
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<td>Phys 212</td>
<td>General Physics II</td>
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<td>Bio 322</td>
<td>Introduction to Anatomy and Physiology I</td>
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<td>Bio 323</td>
<td>Introduction to Anatomy and Physiology II (With Lab)</td>
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<td>Bio 406</td>
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<td>Bio 431</td>
<td>Biology of Aging</td>
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<td>Psych 322</td>
<td>Developmental Psychology</td>
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<td>Psych 3200</td>
<td>Child Health Psychology</td>
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<td>Psych 460</td>
<td>Behavioral Medicine</td>
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<tr>
<td>Anthro 387</td>
<td>Medical Anthropology</td>
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**Courses**

Visit online course listings to view semester offerings for U86 HCare ([https://courses.wustl.edu/CourseInfo.aspx?sch=U&dept=U86&crslvl=1:4](https://courses.wustl.edu/CourseInfo.aspx?sch=U&dept=U86&crslvl=1:4)).

U86 HCare 1001 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 pre-medical students or others majoring in the sciences. Three hours of lecture and two hours of lab each week.
Same as U05 Chem 1001
Credit 4 units.

U86 HCARE 101 General Biology I
First part of a two-semester introduction to basic biological principles and concepts. The first semester covers the molecular and cellular basis of life, bioenergetics, signal transduction, DNA and protein synthesis, and the function of whole organisms (physiology). Laboratory one evening per week. Laboratories include traditional wet labs as well as inquiry-based online labs. This course is restricted to students admitted to the Post-Baccalaureate Pre-Medical program. Others may register with instructor permission and on a space-available basis.
Same as U29 Bio 101
Credit 4 units.

U86 HCARE 102 General Biology II
Second semester of a two-semester sequence that provides a broad, but rigorous introduction to basic biological principles and concepts. The second semester covers DNA technology and genomics, the genetic basis of development, the mechanisms of evolution, the evolutionary history of biological diversity, plant form and function, and ecology. Laboratory one evening per week. Laboratories include traditional wet labs as well as inquiry-based online labs. Prerequisite or Corequisite: U05 Chem 105 (with laboratory), or the equivalent; General Biology 101. This course is restricted to students admitted to the Post-Baccalaureate Premedical program. Others may register with instructor permission, and on a space-available basis.
Same as U29 Bio 102
Credit 4 units.

U86 HCARE 105 General Chemistry I
Systematic treatment of fundamental chemical principles and their applications. Emphasis on atomic and molecular theories, laws of chemical combinations, periodic classification of the elements, and properties of gases, liquids, solids, and solutions. Prerequisite: U20 Math 141, 142, or equivalent, one year of high school chemistry, or consent of department. This course is restricted to students admitted to the Post-Baccalaureate Pre-Medical program. Others may register with instructor permission, and on a space-available basis.
Same as U05 Chem 105
Credit 3 units.

U86 HCARE 106 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 U05-109.
Same as U05 Chem 106
Credit 3 units.

U86 HCARE 110 Medical Imaging of the Human Body
The human body will be explored in both health and diseased conditions via "state of the art" imaging modalities, including CT, MR, ultrasound and PET scans. There will be a rudimentary examination of the different imaging techniques available in order to understand the derivation of the images obtained and why given techniques are employed in certain clinical situations. Indications for general screening as well as more directed diagnostic examinations will be discussed, often with the aid of case studies and common clinical examples. The objective of this course is to give the student a practical "take home" understanding of the human body and some of the current diagnostic imaging approaches being utilized in modern health care. Prerequisite: year of high school or entry-level college biology.
Same as U29 Bio 110
Credit 3 units.

U86 HCARE 134 Introduction to Magnetic Resonance Imaging
An introduction to magnetic resonance imaging (MRI) and its applications in medicine. We will focus on the very basic principles of MRI and the various MR contrast mechanisms, which are needed to correctly read MRI images acquired with specific acquisition schemes. Course will cover basic image acquisition techniques, parameters optimization to improve image quality, popular pulse sequence designs, and special applications such as MR angiography (MRA), cancer imaging, and functional MRI (fMRI, if time allows).
Same as U23 Phys 134
Credit 3 units.

U86 HCARE 151 General Chemistry Laboratory I
This course provides an introduction into basic laboratory techniques, the experimental method, as well as direct experience with chemical principles and the properties and reactions of substances. The topics and experiments in this course complement the material covered in U05-105. Students attend one three-hour laboratory session and one one-hour laboratory lecture every week. Prerequisites: concurrent enrollment in U05-105 or permission of the instructor. This course is restricted to students admitted to the Post-Baccalaureate Pre-Medical program. Others may register with instructor permission, and on a space available basis.
Same as U05 Chem 151
Credit 2 units.

U86 HCARE 152 General Chemistry Lab II
This course provides an introduction to basic laboratory techniques, the experimental method, and the presentation of scientific data as well as direct experience with chemical principles and the properties and reactions of substances. The topics and experiments in this course complement the material covered in the Chem 112A lecture course. Students attend one four-hour laboratory session and one one-hour laboratory lecture every week. Course will be presented in the second half of the semester. Prerequisites: concurrent enrollment in Chem 112A or permission of the instructor. Students registering for Chem 112A should register for both Chem 151 and Chem 152.
Same as U05 Chem 152
Credit 2 units.

U86 HCARE 204 Nutrition
This course examines nutrition as an interdisciplinary science including the chemistry, function, and metabolism of nutrients; regulations of food intake; food habits; digestion and absorption of nutrients; methods of determining nutrient content of foods and nutrient requirements for humans and animals; comparative
U86 HCARE 211 General Physics
Designed for prospective majors in science and engineering and for students planning to enter professional schools. Topics include kinematics, Newton's laws, energy, momentum, rotation, gravity, harmonic motion, wave motion, sound, and fluids. Weekly two-hour laboratory sessions. Prerequisite: previous or concurrent enrollment in U20 Math 156 or equivalent. This course is restricted to students admitted to the Post-Baccalaureate Pre-Medical program. Others may register with instructor permission and on a space-available basis.
Same as U23 Phys 211
Credit 4 units.

U86 HCARE 212 General Physics II
Continuation of General Physics I. Designed for prospective majors in science and engineering and for students planning to enter professional schools. Electricity and magnetism, electromagnetic waves, light and optics, quantization. Weekly laboratory sessions. Prerequisites: U23 Phys 211 and working knowledge calculus. Concurrent enrollment in U20 Math 255 is acceptable.
Same as U23 Phys 212
Credit 4 units.

U86 HCARE 225 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.
Same as U05 Chem 225
Credit 3 units.

U86 HCARE 230 Human Growth and Development
This course provides an overview of emotional, psychological, physical, and social development through the life span. We will emphasize the developmental tasks, characteristics, and typical behaviors of each developmental era (infancy, childhood, adolescence, adulthood, later life). We will study major developmental theorists including Freud, Erickson, Piaget, Millet, Gilligan, and Kohlberg. Prerequisite: U09-100. Open only to University College students.
Same as U09 Psych 230
Credit 3 units.

U86 HCARE 235 Introductory Statistics for the Health Sciences
This course covers material commonly presented in introductory statistics classes from a health sciences perspective, with some additional techniques from medical research. Topics include exploratory data analysis, hypothesis testing, probability, t-tests and ANOVA, correlation and regression, chi-square, diagnostic performance, and survival analysis. In-class examples cover medical issues, and there are supplementary readings from professional journals. There will be a computer lab in which students use a statistics package to analyze research data. In addition to mastery of statistical concepts, considerable emphasis will be placed on understanding how to interpret information in journal articles and how to carry out research.
Credit 3 units.

U86 HCARE 250 Fundamentals of Clinical Research Management I
This introductory course provides the basic foundation for clinical research. We examine the historical evolution of research, linking it to the current regulations and guidelines for good clinical practice. Course material includes research roles and responsibilities, institutional review boards, phases of drug development, the informed consent process, human subject protections, and an overview of study conduct.
Same as U80 CRM 250
Credit 3 units.

U86 HCARE 251 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.
Same as U80 CRM 251
Credit 3 units.

U86 HCARE 261 Organic Chemistry with Lab
The first part of a two-semester survey of organic chemistry. The course will include an introduction to organic structures, reactions, and reaction mechanisms. The laboratory portion of the course will have seven experiments and include an introduction to laboratory methods in organic chemistry, including separation and methods of purification of organic compounds.
Prerequisite: Chem 112A, Chem 152. This course is restricted to students admitted to the Post-Baccalaureate Pre-Medical program. Others may register with instructor permission, and on a space available basis.
Same as U05 Chem 261
Credit 4 units.

U86 HCARE 301 Doctoring in the 21st Century
Medicine is a humane and caring art based on the application of facts and principles, discovered by biological and social scientists, to maintain health as well as to diagnose and treat symptoms or recognizable disease entities. It requires the constant re-evaluation of evidence obtained from patients, hypothesis formation and testing, the repeated weighing of probabilities, and openness to being challenged and appearing
This course is designed to introduce students to the following: (1) how doctors think and diagnose disease, how this process has evolved over the past 3000 years, and how doctors take a medical history and perform a medical exam; (2) major disease processes, such as infection, neoplasia, and metabolic and developmental disease; (3) therapeutic modalities (e.g., pharmacology, surgical repair, organ replacement); and (4) medical ethics, including informed consent and end-of-life issues. As a prelude to this course, the student should be familiar with basic concepts of cell structure and function, genetics, and evolution. The basics of anatomy, physiology, and biochemistry will be provided early in the course.

Same as U29 Bio 308
Credit 3 units. UColl: ML

U86 HCARE 309 Health and Society
This course examines how personal health and well-being are affected by institutional and societal forces. We use an historical perspective in studying, for example, how sleep, leisure, and other aspects of personal health have been changed by industrial, economic, political, and cultural developments such as urban planning, food processing, animal husbandry, and the role of the family doctor. We also take a close look at environmental factors (e.g., global warming) and related political and economic forces that produce or exacerbate chronic diseases. Finally, we critique how personal health and the health care industry have been influenced by major institutional forces such as the insurance and pharmaceutical industries, professional licensure, government-sponsored research, and the media. We read case studies and medical journals to understand and discuss related ethical and policy questions.

Same as U80 CRM 509
Credit 3 units.

U86 HCARE 312 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.

U86 HCARE 313 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.

U86 HCARE 314 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.

U86 HCARE 318 Statistics in Clinical Research
This course presents the basic principles for understanding the design, conduct, analysis, and endpoints of clinical trials. We will review statistical terminology and explain trial design from a clinician's point of view, including theoretical and practical aspects of randomization, stratification, blinding, and single center versus multi-center trials. Additional topics include hypothesis formulation, commonly used research designs, statistical significance, confidence intervals, and statistical tests.

Same as U80 CRM 318
Credit 3 units.

U86 HCARE 3200 Child Health Psychology
This course examines the field of child health psychology, which focuses on the impact of health and illness on the physical and psychological development of children and adolescents. We will explore the relations among psychological and physical health and the welfare of children within a developmental perspective, considered within the contexts of families, health care systems, schools, peers, and community. Topics such as chronic illness (e.g., Cystic Fibrosis, sickle cell disease, organ transplant, asthma), adherence to medically prescribed regimens, and neuropsychological aspects of chronic illness will be addressed. Previous course work in Developmental Psychology (e.g., U09 230, U09 322) would be helpful but not required.

Same as U09 Psych 3200
Credit 3 units.

U86 HCARE 322 Introduction to Anatomy and Physiology I
This is the first of a two-semester sequence that examines all major organ systems in the human/mammalian body. The lab is an integral part of the course. The emphasis is on understanding normal function and processes at the gross, cellular, and molecular levels as well as some discussion of pathology and disease. The first semester covers basic principles of cellular physiology, histology, digestion, bone, muscle, and nervous systems. Optional weekly discussion and review sections are also offered during which case studies are discussed as a means of applying and reviewing lecture material. A student may not receive credit for both L41 Biol 303A and U29 Bio 322.

Same as U29 Bio 322
Credit 5 units.

U86 HCARE 3231 Introduction to Anatomy and Physiology II
(With Lab)
The second of a two-semester sequence that examines the structure and function of all the major organ systems. Emphasis on understanding normal function and processes at the gross, cellular, and molecular levels, but also addresses pathology and disease. This semester covers sensory, endocrine, respiratory, circulatory, lymphatic, and urogenital systems. Students should sign up for lecture and one laboratory section. Lab is an integral part of the course. Optional discussion and review sections meet weekly.
Same as U29 Bio 323
Credit 5 units.

U86 HCARE 324 Health Care Reform and Policy
This course examines the complexities of health care policy, using the Patient Protection and Affordable Care Act (PPACA) as a reference point. In analyzing this most recent (2010) health care legislation, we begin with an historical perspective on health care reform — how and why we got here — and then look at the social, political, and economic realities going forward. We will study and apply policy analysis tools for measuring cost and overall effectiveness of new proposals. Additional course topics include special interests, federal and state government roles, unintended consequences of health care policies, influence of regulatory agencies, and ethical issues. Credit 3 units.

U86 HCARE 325 Research Ethics and Regulatory Affairs
This course will provide an understanding of the ethical guidelines, issues, and challenges of conducting research on human subjects. We will explore issues such as conflict of interest, genetic testing, limits of confidentiality, risk, and the distinction between compliance and ethics. As we learn about protecting research groups and interests and explaining rights and liabilities, we will study health care legislation and regulations, guidelines, contractual matters, and the complex regulatory framework that governs human subject research. Finally, we will learn to use an ethical problem-solving model in clinical research.
Same as U80 CRM 325
Credit 3 units. UColl: ML, OLI

U86 HCARE 326 The Doctor Is In: Anton Chekhov and Narrative Medicine
This course bridges the world of literature and the world of medicine by focusing on both Anton Chekhov, a practicing doctor and one of the greatest Russian writers of the 19th century, and the newly emerging field of Narrative Medicine. In this course we will explore how Chekhov was able to integrate and express cultural attitudes towards illness, suffering, and healing in his writing and medical practice, as we simultaneously explore how doctors and other health care practitioners apply such topics in their professional work today. We will supplement Chekhov readings with foundational Narrative Medicine texts and the works of such contemporary doctor-writers as Atul Gawande, Sayantani DasGupta, and Paul Kalanithi. Class will include self-reflective writing workshops with Sarah Stanage, MD. The course is discussion-based and appropriate for students of literature, culture, and medicine at all levels. This course counts towards both the IAS major and the Medical Humanities minor.
Same as U43 IS 326
Credit 3 units.

U86 HCARE 327 Introduction to Human Disease and its Scientific Basis
This course will provide an overview of some of the most troubling health problems facing adult men and women today including cardiovascular heart disease and stroke, osteoporosis and bone fractures, diabetes and hypoglycemia, kidney disease, rheumatoid and osteoarthritis, cancers of select organ systems, chronic obstructive pulmonary disorder, and issues relating to obesity, fat management, and the newly defined metabolic syndrome. Through both formal lectures and class discussions of carefully selected current research literature, as well as short student presentations, we will examine the primary causes, risk factors, and biological mechanisms underlying such diseases, their impact on the lifestyle and lifespan of afflicted individuals, and what effective preventative or therapeutic treatment strategies are currently in use or emerging through exciting new research discoveries. Special topics will focus on the promise versus serious concerns or recent failure of particular noteworthy drugs (e.g., Vioxx, Baycol, Gleevec) and the lessons they can teach us about the inherent difficulties associated with pharmaceutical drug development today.
Same as U29 Bio 342
Credit 3 units.

U86 HCARE 328 Managing Healthcare Organizations: Clinical Perspectives
Credit 3 units.

U86 HCARE 329 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.

U86 HCARE 330 Pharmacology for Clinical Research
This course presents the basic principles of pharmacology and their application to clinical research management to help ensure safe and effective management of drug trials. We will study the foundations of pharmacology, including the principles of drug absorption, distribution, metabolism and excretion, drug binding sites and interactions, and drug development. We also will examine pharmacological problems with special populations, and the emergent area of pharmacogenetics. In the second half of the course we will review important drug classes, with an emphasis on understanding “Investigator’s Brochures,” including drug action and place in therapy, pharmacology, toxicity, chemical properties, and kinetics.
Same as U80 CRM 330
Credit 3 units.

U86 HCARE 354 Health Care Reform and Policy
This course examines important and complex developments in contemporary health care policy. We begin with an historical overview and then look at the structure of current health care delivery to identify political and economic challenges moving forward. In particular, we will critically examine methods and principles for evaluating health care costs and measuring policy effectiveness. The course also addresses the unintended consequences of health care policies, special interests and political agendas, and the influence of major institutional forces on clinical and translational research. Case studies and guest speakers will help illustrate current ethical dilemmas and other real challenges to contemporary health care and reform. Although this course meets over two weekends, students are expected to complete much of the relevant course reading prior to each weekend session and to complete paper(s) after the weekend sessions. Students are expected to log in to the
online course materials by the second week of class to review assignments and readings due prior to course meeting dates. Same as U80 CRM 655
Credit 3 units.

U86 HCARE 358 Health Psychology
This course examines the history of health psychology and its place in general health care. We will examine relevant theory as applied to specific topics including stress, coping, weight loss, chronic illness in general (diabetes in particular), adherence to medically prescribed regimens, Type A personality and cardiac risk factors. Prerequisite: U09-100.
Credit 3 units.

U86 HCARE 360 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 health care 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.

U86 HCARE 363 Healthcare Negotiations
Health care spending in the United States is the highest in the world, and the industry requires leaders who can understand and negotiate opportunities while managing conflict and change. This course covers major challenges in health care negotiations, including managing competing constituencies, negotiating financial conflicts, drawing together providers and patients, and leading negotiations about access and quality of care. We also study negotiation pre-planning and competitive assessment, shifting from competition to cooperation, irrational actors in negotiations, and when to end negotiations. The course provides a theoretical framework for negotiation along with simulations with local health industry executives.
Credit 3 units.

U86 HCARE 364 Healthcare Entrepreneurship
Health care entrepreneurs improve the overall quality of health care delivery. This course introduces students to the particular characteristics of health care entrepreneurship, focusing on the creation, funding, and management of biotechnology and health care ventures. Students will learn the steps involved in the conceptualization, planning, capitalization, launch, compensation, and management of an entrepreneurial health care venture. Students will use course principles and skills to develop an entrepreneurial business plan that addresses a real clinical problem.
Credit 3 units.

U86 HCARE 369 Strategic Planning and Management in Health Care
Credit 3 units.

U86 HCARE 370 Writing and Representation of Pain
This course explores a range of discourses about pain, including theoretical and technical ones. Same as U65 ELit 370

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U86 HCARE 377 Compassion Cultivation Training
Compassion Cultivation Training (CCT) is an 8-week educational program designed to help students cultivate compassion, strengthen their resilience, feel more connected to others, and improve their 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.
Same as U69 Anthro 3777
Credit 1 unit.

U86 HCARE 406 Introduction to Biochemistry
This course provides a basic understanding of the molecular structure of biomolecules as well as the metabolic processes by which these molecules are synthesized and degraded and by which energy is produced to support cellular processes. It includes a study of enzyme kinetics and metabolic control mechanisms. Prerequisites: Chem 261 and 262 or permission of instructor.
Same as U29 Bio 406
Credit 3 units.

U86 HCARE 409 Health and Society
Credit 3 units.

U86 HCARE 438 Virology
This course is designed to provide an overview of the field of virology. The first half of the course will focus on strategies used by viruses to enter host cells, transcribe genes, replicate, assemble progeny viral particles and exit the host cell. The second half of the course will focus on recent advances and problems arising in the field of virology. We will discuss the host response to viruses, the use of viruses as vectors for vaccines and gene therapy, the role of viruses in eliciting cancer as well as the evolution of viruses and emerging viral diseases.
Same as U29 Bio 438
Credit 3 units.

U86 HCARE 4391 Modern Genetics
Modern concepts in genetics from Mendel to the latest in genetic engineering. Discussion of DNA manipulation techniques with emphasis on human genetics and practical applications. Suitable for, but not limited to, science teachers, medical technicians, and health care workers. Prerequisite: Consult Course Listings.
Same as U29 Bio 4391
Credit 3 units.

U86 HCARE 458 Readings and Research in Biomedical Sciences
Each day, more than 5000 new biomedical research articles are published. As future physicians and scientists, students will need to be able to identify and stay current on medical advancements. Medicine is interdisciplinary, and a successful scientific career means being able to make connections between
diverse research fields. The goal of this journal club is to help students develop skills for locating, analyzing, and understanding scientific research articles. Students will learn how to locate primary journal articles using a variety of search engines such as PubMed and Ovid, and practice reading articles outside of their comfort zone without being intimidated by scientific jargon and formal writing styles. Students will be expected to discuss current research articles and develop effective scientific writing skills by analyzing the main sections of a scientific manuscript (Abstract, Background, Methods, Results, Discussion, Conclusion, Implications).

Same as U29 Bio 458
Credit 2 units.

U86 HCARE 460 Behavioral Medicine
The role of behavior in the prevention and treatment of significant medical problems will be studied. The history of the field of behavioral medicine will be reviewed, with applications to medical problems and its complementary role in preventative medicine in the context of a number of medical disorders and risky behaviors, including obesity, chronic pain, cancer, and smoking. Effective stress management practices to help ameliorate common results of stress such as tension headache and high blood pressure also will be studied. Prerequisite: Psych 100.

Same as U09 Psych 460
Credit 3 units.

U86 HCARE 471 Topics in Cancer Biology
Over two-thirds of all people know someone who has cancer. This course aims at providing students with a more extensive understanding of what cancer is and how it affects the human body. We will discuss past and current molecular research in cancer, animal models in cancer, the many different types of human cancer, and novel cancer therapies being developed by biotechnology and pharmaceutical companies. The topics will be presented in a basic scientific nature with an emphasis on gaining a broad understanding of the subjects. Prerequisite: General Biology I.

Same as U29 Bio 471
Credit 3 units. UColl: OLH