

# Health Sciences

## Program Requirements

Students in the B.H.Sc. Honours program choose to follow one of five concentrations. The selection must take place at admission.

### Health Sciences with Concentration B.H.Sc. Honours (20.0 credits)

#### A. Credits Included in the Major CGPA (10.0 credits)

##### 1. 4.0 credits in: 4.0

HLTH 1000 [0.5]	Fundamentals of Health
HLTH 2001 [0.5]	Health Research Methods and Skills
HLTH 2002 [0.5]	Molecular and Cellular Pathology
HLTH 2003 [0.5]	Social Determinants of Health
HLTH 3101 [0.5]	Global Health
HLTH 3201 [0.5]	Epidemiology
HLTH 3302 [0.5]	Immunity and Immune-Related Disorders
HLTH 3404 [0.5]	Psychosocial and Biological Interactions in Health

##### 2. 1.5 credits in: 1.5

#### a) Project/Field Placement pathway

0.5 credit from:

HLTH 3901 [0.5]	Emerging Issues in Biomedical Science
HLTH 3902 [0.5]	Emerging Issues in Global Health
HLTH 3903 [0.5]	Emerging Issues in Environment and Health
HLTH 3904 [0.5]	Emerging Issues in Health Throughout the Lifespan
HLTH 3905 [0.5]	Emerging Issues in Disabilities and Chronic Illness

and

1.0 credit from:

HLTH 4907 [1.0]	Capstone Course – Group Research Project
HLTH 4909 [1.0]	Capstone Course – Field Placement
HLTH 4910 [1.0]	Honours Individual Research Thesis

OR

#### b) Essay pathway

0.5 credit in HLTH elective at the 3000 level or above

and

1.0 credit in:

HLTH 4906 [1.0]	Capstone course – Research Essay
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##### 3. 0.5 credit in HLTH at the 3000 level or above 0.5

##### 4. 4.0 credits in concentration electives at the 3000 level or above 4.0

#### B. Credits Not Included in the Major CGPA (10.0 credits)

##### 5. 2.5 credits in: 2.5

BIOL 1103 [0.5]	Foundations of Biology I
BIOL 1104 [0.5]	Foundations of Biology II
CHEM 1001 [0.5]	General Chemistry I

CHEM 1002 [0.5]	General Chemistry II
MATH 1007 [0.5]	Elementary Calculus I

##### 6. 1.0 credit from: 1.0

ECON 1000 [1.0]	Introduction to Economics
PSYC 1001 [0.5]	Introduction to Psychology I
PSYC 1002 [0.5]	Introduction to Psychology II

##### 7. 1.0 credit in: 1.0

STAT 2507 [0.5]	Introduction to Statistical Modeling I
STAT 2509 [0.5]	Introduction to Statistical Modeling II

##### 8. 1.0 credit in: 1.0

BIOL 2104 [0.5]	Introductory Genetics
BIOL 2200 [0.5]	Cellular Biochemistry

##### 9. 0.5 credit in approved 2000-level concentration electives 0.5

##### 10. 0.5 credit from: 0.5

PHIL 1550 [0.5]	Introduction to Ethics and Social Issues
PHIL 2408 [0.5]	Bioethics

##### 11. 3.5 credits in free electives. 3.5

NOTE: The maximum allowed combined number of minors and concentrations for any student is two.

Total Credits 20.0

#### Concentration in Biomedical Sciences (5.0 credits)

##### 1. 0.5 credit from: 0.5

CHEM 2800 [0.5]	Foundations for Environmental Chemistry
FOOD 2001 [0.5]	Principles of Nutrition
PSYC 2301 [0.5]	Introduction to Health Psychology
NEUR 2201 [0.5]	Cellular and Molecular Neuroscience

##### 2. 2.5 credits in: 2.5

BIOL 3104 [0.5]	Molecular Genetics
BIOL 3305 [0.5]	Human and Comparative Physiology
or BIOL 3306 [0.5]	Human Anatomy and Physiology
BIOL 3307 [0.5]	Advanced Human Anatomy and Physiology
HLTH 2004 [0.5]	Microbiology and Virology
HLTH 3303 [0.5]	Biochemical Basis of Health and Pathology II

##### 3. 0.5 credit from: 0.5

HLTH 4201 [0.5]	Applied Health Statistics
HLTH 4202 [0.5]	Health Program Evaluation Tools and Methods

##### 4. 1.0 credit from: 1.0

HLTH 4102 [0.5]	New Health Technologies
HLTH 4301 [0.5]	Pandemics and Infectious Disease
HLTH 4302 [0.5]	Inflammatory and Endocrine Factors in Diseases
HLTH 4303 [0.5]	Pharmacotherapeutics
HLTH 4401 [0.5]	Maternal and Prenatal Determinants of Health
HLTH 4502 [0.5]	Diseases and Disabilities Related to Sensory Processes and Movement
HLTH 4503 [0.5]	Trauma-related Illness and Disability

<b>5. 0.5 credit from:</b>		0.5
BIOL 3202 [0.5]	Principles of Developmental Biology	
BIOL 3501 [0.5]	Biomechanics	
BIOL 4202 [0.5]	Mutagenesis and DNA Repair	
ECON 4460 [0.5]	Health Economics	
FOOD 3005 [0.5]	Food Microbiology	
FOOD 4201 [0.5]	Advanced Nutrition and Metabolism	
FOOD 4202 [0.5]	Micronutrients and Health	
GEOG 3206 [0.5]	Health, Environment, and Society	
HLTH 3102 [0.5]	Indigenous Health in a Global World	
HLTH 3103 [0.5]	Health Policy and Canada's Health Care System	
HLTH 3104 [0.5]	Regulatory Issues and Human Health	
HLTH 3401 [0.5]	Diseases of Childhood	
HLTH 3402 [0.5]	Diseases of Aging	
HLTH 3403 [0.5]	Gender and Health	
HLTH 3503 [0.5]	Chronic Illness and Disability	
HLTH 4101 [0.5]	Global Health Governance	
HLTH 4601 [0.5]	Environmental Pollution and Health	
HLTH 4701 [0.5]	Knowledge Translation	
HLTH 4901 [0.5]	Directed Studies in Health	
NEUR 3304 [0.5]	Hormones and Behaviour	
NEUR 3401 [0.5]	Environmental Toxins and Mental Health	
NEUR 3502 [0.5]	Neurodevelopmental Determinants of Mental Health	
<b>Total Credits</b>		<b>5.0</b>
<b>Concentration in Disability and Chronic Illness (5.5 credits)</b>		
<b>1. 0.5 credit in:</b>		0.5
NEUR 2201 [0.5]	Cellular and Molecular Neuroscience	
<b>2. 0.5 credit from:</b>		0.5
BIOL 2303 [0.5]	Microbiology	
CHEM 2800 [0.5]	Foundations for Environmental Chemistry	
FOOD 2001 [0.5]	Principles of Nutrition	
PSYC 2301 [0.5]	Introduction to Health Psychology	
<b>3. 2.5 credits in:</b>		2.5
BIOL 3305 [0.5]	Human and Comparative Physiology	
or BIOL 3306 [0.5]	Human Anatomy and Physiology	
BIOL 3307 [0.5]	Advanced Human Anatomy and Physiology	
HLTH 3503 [0.5]	Chronic Illness and Disability	
HLTH 4502 [0.5]	Diseases and Disabilities Related to Sensory Processes and Movement	
HLTH 4503 [0.5]	Trauma-related Illness and Disability	
<b>4. 0.5 credit from:</b>		0.5
HLTH 4201 [0.5]	Applied Health Statistics	
HLTH 4202 [0.5]	Health Program Evaluation Tools and Methods	
<b>5. 1.0 credit from:</b>		1.0

BIOL 3501 [0.5]	Biomechanics	
NEUR 3501 [0.5]	Neurodegeneration and Aging	
HLTH 3103 [0.5]	Health Policy and Canada's Health Care System	
HLTH 3104 [0.5]	Regulatory Issues and Human Health	
HLTH 3401 [0.5]	Diseases of Childhood	
HLTH 3402 [0.5]	Diseases of Aging	
HLTH 4302 [0.5]	Inflammatory and Endocrine Factors in Diseases	
<b>6. 0.5 credit from:</b>		0.5
BIOC 3008 [0.5]	Bioinformatics	
BIOL 3104 [0.5]	Molecular Genetics	
BIOL 3202 [0.5]	Principles of Developmental Biology	
ECON 4460 [0.5]	Health Economics	
FOOD 3005 [0.5]	Food Microbiology	
FOOD 4103 [0.5]	Food Safety Risk Assessment, Communication and Management I	
FOOD 4201 [0.5]	Advanced Nutrition and Metabolism	
FOOD 4202 [0.5]	Micronutrients and Health	
GEOG 3206 [0.5]	Health, Environment, and Society	
NEUR 3304 [0.5]	Hormones and Behaviour	
NEUR 3401 [0.5]	Environmental Toxins and Mental Health	
NEUR 3502 [0.5]	Neurodevelopmental Determinants of Mental Health	
HLTH 2004 [0.5]	Microbiology and Virology	
HLTH 3102 [0.5]	Indigenous Health in a Global World	
HLTH 3303 [0.5]	Biochemical Basis of Health and Pathology II	
HLTH 3403 [0.5]	Gender and Health	
HLTH 4101 [0.5]	Global Health Governance	
HLTH 4301 [0.5]	Pandemics and Infectious Disease	
HLTH 4303 [0.5]	Pharmacotherapeutics	
HLTH 4401 [0.5]	Maternal and Prenatal Determinants of Health	
HLTH 4601 [0.5]	Environmental Pollution and Health	
HLTH 4701 [0.5]	Knowledge Translation	
HLTH 4901 [0.5]	Directed Studies in Health	
<b>Total Credits</b>		<b>5.5</b>
<b>Concentration in Environment and Health (6.0 credits)</b>		
<b>1. 1.0 credit in:</b>		1.0
BIOL 2005 [0.5]	Human Physiology	
CHEM 2800 [0.5]	Foundations for Environmental Chemistry	
<b>2. 0.5 credit from:</b>		0.5
BIOL 2303 [0.5]	Microbiology	
FOOD 2001 [0.5]	Principles of Nutrition	
PSYC 2301 [0.5]	Introduction to Health Psychology	
NEUR 2201 [0.5]	Cellular and Molecular Neuroscience	
<b>3. 2.5 credits in:</b>		2.5
BIOC 4708 [0.5]	Principles of Toxicology	
CHEM 3800 [0.5]	The Chemistry of Environmental Pollutants	

HLTH 3104 [0.5]	Regulatory Issues and Human Health		
HLTH 3303 [0.5]	Biochemical Basis of Health and Pathology II		
HLTH 4601 [0.5]	Environmental Pollution and Health		
<b>4. 0.5 credit from:</b>		0.5	
HLTH 4201 [0.5]	Applied Health Statistics		
HLTH 4202 [0.5]	Health Program Evaluation Tools and Methods		
<b>5. 1.0 credit from:</b>		1.0	
BIOL 4202 [0.5]	Mutagenesis and DNA Repair		
CHEM 4800 [0.5]	Atmospheric Chemistry		
ECON 3804 [0.5]	Environmental Economics		
GEOG 3206 [0.5]	Health, Environment, and Society		
HLTH 3401 [0.5]	Diseases of Childhood		
HLTH 3402 [0.5]	Diseases of Aging		
HLTH 4303 [0.5]	Pharmacotherapeutics		
NEUR 3401 [0.5]	Environmental Toxins and Mental Health		
<b>6. 0.5 credit from:</b>		0.5	
BIOC 3008 [0.5]	Bioinformatics		
BIOL 3104 [0.5]	Molecular Genetics		
BIOL 3202 [0.5]	Principles of Developmental Biology		
BIOL 3305 [0.5]	Human and Comparative Physiology		
or BIOL 3306 [0.5]	Human Anatomy and Physiology		
BIOL 3307 [0.5]	Advanced Human Anatomy and Physiology		
ECON 4460 [0.5]	Health Economics		
FOOD 3005 [0.5]	Food Microbiology		
FOOD 4103 [0.5]	Food Safety Risk Assessment, Communication and Management I		
HLTH 2004 [0.5]	Microbiology and Virology		
HLTH 3102 [0.5]	Indigenous Health in a Global World		
HLTH 3103 [0.5]	Health Policy and Canada's Health Care System		
HLTH 3403 [0.5]	Gender and Health		
HLTH 3503 [0.5]	Chronic Illness and Disability		
HLTH 4101 [0.5]	Global Health Governance		
HLTH 4102 [0.5]	New Health Technologies		
HLTH 4301 [0.5]	Pandemics and Infectious Disease		
HLTH 4302 [0.5]	Inflammatory and Endocrine Factors in Diseases		
HLTH 4401 [0.5]	Maternal and Prenatal Determinants of Health		
HLTH 4502 [0.5]	Diseases and Disabilities Related to Sensory Processes and Movement		
HLTH 4503 [0.5]	Trauma-related Illness and Disability		
HLTH 4701 [0.5]	Knowledge Translation		
HLTH 4901 [0.5]	Directed Studies in Health		
Total Credits		6.0	
<b>Concentration in Global Health (5.5 credits)</b>			
<b>1. 0.5 credit in:</b>		0.5	
BIOL 2005 [0.5]	Human Physiology		
<b>2. 0.5 credit from:</b>		0.5	
CHEM 2800 [0.5]	Foundations for Environmental Chemistry		
FOOD 2001 [0.5]	Principles of Nutrition		
PSYC 2301 [0.5]	Introduction to Health Psychology		
NEUR 2201 [0.5]	Cellular and Molecular Neuroscience		
<b>3. 2.5 credits in:</b>		2.5	
HLTH 2004 [0.5]	Microbiology and Virology		
HLTH 3102 [0.5]	Indigenous Health in a Global World		
HLTH 4101 [0.5]	Global Health Governance		
HLTH 4301 [0.5]	Pandemics and Infectious Disease		
HLTH 4401 [0.5]	Maternal and Prenatal Determinants of Health		
<b>4. 0.5 credit from:</b>		0.5	
HLTH 4201 [0.5]	Applied Health Statistics		
HLTH 4202 [0.5]	Health Program Evaluation Tools and Methods		
<b>5. 1.0 credit from:</b>		1.0	
GEOG 3206 [0.5]	Health, Environment, and Society		
HLTH 3103 [0.5]	Health Policy and Canada's Health Care System		
HLTH 3104 [0.5]	Regulatory Issues and Human Health		
HLTH 3303 [0.5]	Biochemical Basis of Health and Pathology II		
HLTH 3403 [0.5]	Gender and Health		
HLTH 4102 [0.5]	New Health Technologies		
HLTH 4303 [0.5]	Pharmacotherapeutics		
HLTH 4601 [0.5]	Environmental Pollution and Health		
<b>6. 0.5 credit from:</b>		0.5	
BIOC 3008 [0.5]	Bioinformatics		
BIOL 3305 [0.5]	Human and Comparative Physiology		
or BIOL 3306 [0.5]	Human Anatomy and Physiology		
BIOL 3307 [0.5]	Advanced Human Anatomy and Physiology		
BIOL 3104 [0.5]	Molecular Genetics		
ECON 4460 [0.5]	Health Economics		
FOOD 3005 [0.5]	Food Microbiology		
FOOD 4103 [0.5]	Food Safety Risk Assessment, Communication and Management I		
FOOD 4201 [0.5]	Advanced Nutrition and Metabolism		
FOOD 4202 [0.5]	Micronutrients and Health		
HLTH 3401 [0.5]	Diseases of Childhood		
HLTH 3402 [0.5]	Diseases of Aging		
HLTH 3503 [0.5]	Chronic Illness and Disability		
HLTH 4302 [0.5]	Inflammatory and Endocrine Factors in Diseases		
HLTH 4502 [0.5]	Diseases and Disabilities Related to Sensory Processes and Movement		
HLTH 4503 [0.5]	Trauma-related Illness and Disability		
HLTH 4701 [0.5]	Knowledge Translation		
HLTH 4901 [0.5]	Directed Studies in Health		
NEUR 3304 [0.5]	Hormones and Behaviour		

NEUR 3401 [0.5]	Environmental Toxins and Mental Health	
NEUR 3501 [0.5]	Neurodegeneration and Aging	
NEUR 3502 [0.5]	Neurodevelopmental Determinants of Mental Health	
Total Credits		5.5

### Concentration in Health Throughout the Lifespan (5.5 credits)

<b>1. 0.5 credit in:</b>		0.5
NEUR 2201 [0.5]	Cellular and Molecular Neuroscience	
<b>2. 0.5 credit from:</b>		0.5
BIOL 2303 [0.5]	Microbiology	
CHEM 2800 [0.5]	Foundations for Environmental Chemistry	
FOOD 2001 [0.5]	Principles of Nutrition	
PSYC 2301 [0.5]	Introduction to Health Psychology	
<b>3. 2.5 credits in:</b>		2.5
BIOL 3305 [0.5]	Human and Comparative Physiology	
or BIOL 3306 [0.5]	Human Anatomy and Physiology	
BIOL 3307 [0.5]	Advanced Human Anatomy and Physiology	
HLTH 3401 [0.5]	Diseases of Childhood	
HLTH 3402 [0.5]	Diseases of Aging	
HLTH 4401 [0.5]	Maternal and Prenatal Determinants of Health	
<b>4. 0.5 credit from:</b>		0.5
HLTH 4201 [0.5]	Applied Health Statistics	
HLTH 4202 [0.5]	Health Program Evaluation Tools and Methods	
<b>5. 1.0 credit from:</b>		1.0
HLTH 3103 [0.5]	Health Policy and Canada's Health Care System	
HLTH 3303 [0.5]	Biochemical Basis of Health and Pathology II	
HLTH 3403 [0.5]	Gender and Health	
HLTH 3503 [0.5]	Chronic Illness and Disability	
HLTH 4302 [0.5]	Inflammatory and Endocrine Factors in Diseases	
NEUR 3501 [0.5]	Neurodegeneration and Aging	
NEUR 3502 [0.5]	Neurodevelopmental Determinants of Mental Health	
<b>6. 0.5 credit from:</b>		0.5
HLTH 2004 [0.5]	Microbiology and Virology	
BIOC 3008 [0.5]	Bioinformatics	
BIOL 3104 [0.5]	Molecular Genetics	
BIOL 3202 [0.5]	Principles of Developmental Biology	
BIOL 3501 [0.5]	Biomechanics	
ECON 4460 [0.5]	Health Economics	
FOOD 3005 [0.5]	Food Microbiology	
FOOD 4103 [0.5]	Food Safety Risk Assessment, Communication and Management I	
FOOD 4201 [0.5]	Advanced Nutrition and Metabolism	
FOOD 4202 [0.5]	Micronutrients and Health	
GEOG 3206 [0.5]	Health, Environment, and Society	
HLTH 3102 [0.5]	Indigenous Health in a Global World	

HLTH 3104 [0.5]	Regulatory Issues and Human Health	
HLTH 4101 [0.5]	Global Health Governance	
HLTH 4102 [0.5]	New Health Technologies	
HLTH 4301 [0.5]	Pandemics and Infectious Disease	
HLTH 4303 [0.5]	Pharmacotherapeutics	
HLTH 4502 [0.5]	Diseases and Disabilities Related to Sensory Processes and Movement	
HLTH 4503 [0.5]	Trauma-related Illness and Disability	
HLTH 4601 [0.5]	Environmental Pollution and Health	
HLTH 4701 [0.5]	Knowledge Translation	
HLTH 4901 [0.5]	Directed Studies in Health	
NEUR 3304 [0.5]	Hormones and Behaviour	
NEUR 3401 [0.5]	Environmental Toxins and Mental Health	
Total Credits		5.5

### Health Sciences

#### B.H.Sc. General (15.0 credits)

##### A. Credits Included in the Major CGPA (6.5 credits)

<b>1. 2.0 credits in:</b>		2.0
HLTH 1000 [0.5]	Fundamentals of Health	
HLTH 2001 [0.5]	Health Research Methods and Skills	
HLTH 2002 [0.5]	Molecular and Cellular Pathology	
HLTH 2003 [0.5]	Social Determinants of Health	
<b>2. 1.0 credit in:</b>		1.0
STAT 2507 [0.5]	Introduction to Statistical Modeling I	
STAT 2509 [0.5]	Introduction to Statistical Modeling II	
<b>3. 0.5 credit from:</b>		0.5
BIOL 2005 [0.5]	Human Physiology	
BIOL 3305 [0.5]	Human and Comparative Physiology	
BIOL 3306 [0.5]	Human Anatomy and Physiology	
<b>4. 0.5 credit from:</b>		0.5
BIOL 2303 [0.5]	Microbiology	
CHEM 2800 [0.5]	Foundations for Environmental Chemistry	
FOOD 2001 [0.5]	Principles of Nutrition	
NEUR 2201 [0.5]	Cellular and Molecular Neuroscience	
PSYC 2301 [0.5]	Introduction to Health Psychology	
<b>5. 2.5 credits from:</b>		2.5
HLTH 3101 [0.5]	Global Health	
or HLTH 3103 [0.5]	Health Policy and Canada's Health Care System	
HLTH 3201 [0.5]	Epidemiology	
HLTH 3302 [0.5]	Immunity and Immune-Related Disorders	
HLTH 3401 [0.5]	Diseases of Childhood	
HLTH 3402 [0.5]	Diseases of Aging	
HLTH 3404 [0.5]	Psychosocial and Biological Interactions in Health	
HLTH 3503 [0.5]	Chronic Illness and Disability	
<b>B. Credits Not Included in the Major CGPA (8.5 credits)</b>		
<b>6. 2.5 credits in:</b>		2.5

BIOL 1103 [0.5]	Foundations of Biology I	
BIOL 1104 [0.5]	Foundations of Biology II	
CHEM 1001 [0.5]	General Chemistry I	
CHEM 1002 [0.5]	General Chemistry II	
MATH 1007 [0.5]	Elementary Calculus I	
<b>7. 1.0 credit from:</b>		<b>1.0</b>
ECON 1000 [1.0]	Introduction to Economics	
PSYC 1001 [0.5]	Introduction to Psychology I	
PSYC 1002 [0.5]	Introduction to Psychology II	
<b>8. 0.5 credit from:</b>		<b>0.5</b>
PHIL 1550 [0.5]	Introduction to Ethics and Social Issues	
PHIL 2408 [0.5]	Bioethics	
<b>9. 4.5 credits in free electives.</b>		<b>4.5</b>
<b>Total Credits</b>		<b>15.0</b>

## Health Sciences (HLTH) Courses

### HLTH 1000 [0.5 credit]

#### Fundamentals of Health

Introduction to what comprises a healthy body and mind, and what leads to illness and disease. Biomedical, psychosocial, and epidemiological approaches to current issues in the field of health. Policy and cultural/environmental contexts.

Precludes additional credit for HLTH 1001.

Lectures three hours a week and group one hour a week.

### HLTH 1001 [0.5 credit]

#### Principles of Health

Health and illness will be considered from an interdisciplinary perspective, including biomedical, cultural, psychosocial and environmental.

Precludes additional credit for HLTH 1000.

Lecture three hours a week.

### HLTH 2001 [0.5 credit]

#### Health Research Methods and Skills

An introduction to quantitative and qualitative methods and designs in health sciences research. Basic research skills will also be provided, including regulatory aspects of conducting research, information literacy skills, evaluating published research and other sources of evidence in the digital age.

Prerequisite(s): HLTH 1000 or HLTH 1001.

Lecture three hours a week, lab/workshop two hours a week.

### HLTH 2002 [0.5 credit]

#### Molecular and Cellular Pathology

Introduction to the causes, natural history, and pathophysiology of common human diseases of various organ systems. Diseases related to structural and functional changes at the molecular, cellular and organ level.

Prerequisite(s): HLTH 1000 and BIOL 1103.

Lecture three hours a week.

### HLTH 2003 [0.5 credit]

#### Social Determinants of Health

Overview of the social determinants of health, ranging from early life experiences, poverty, social status, migration, and the physical environment. The relation between social determinants and environmental vulnerabilities, health behaviours, illness prevalence, treatment outcomes, and access to health care.

Prerequisite(s): HLTH 1000 or HLTH 1001.

Lecture three hours a week.

### HLTH 2004 [0.5 credit]

#### Microbiology and Virology

Introduction to the pathogenic microorganisms, including fungal, bacterial, viral and prion. Biochemical, genetic, pathological and epidemiological aspects in the human context; their interaction with host defense systems and strategies for antibiotic and vaccine development.

Precludes additional credit for HLTH 3301 (no longer offered).

Prerequisite(s): HLTH 1000 and BIOL 1103 or permission of the department.

Lecture three hours a week.

### HLTH 3101 [0.5 credit]

#### Global Health

Overview of issues in global health with focus on developing countries. Key indicators and determinants of global health, implementation and evaluation of global programs, challenges of research and interventions in the developing world, and key players in addressing global health issues.

Prerequisite(s): HLTH 2001 and HLTH 2003, or permission of the department.

Lecture and seminar, three hours per week.

### HLTH 3102 [0.5 credit]

#### Indigenous Health in a Global World

The health conditions of Indigenous peoples in different regions of the world; social and biological factors that contribute to greater risk and poor health; strategies of Indigenous peoples to restore health to their peoples.

Prerequisite(s): HLTH 2001 and HLTH 2003, or permission of the department.

Lecture and seminar three hours per week.

### HLTH 3103 [0.5 credit]

#### Health Policy and Canada's Health Care System

The history of Canada's health care system. The model of financing and intergovernmental responsibilities. Current and emerging policy debates facing our health care system, and the role of scientific evidence in decision-making and policy development.

Prerequisite(s): HLTH 1000 or HLTH 1001, or permission of the department.

Lecture and seminar three hours per week.

**HLTH 3104 [0.5 credit]****Regulatory Issues and Human Health**

The general principles of health regulatory policies in Canada. The role of scientific evidence in developing legislation and regulations at different levels, including probable levels of risk, standards of evidence, cost-benefit analysis, ethical considerations, psychosocial factors influencing risk management and compliance, and evolving technologies.

Prerequisite(s): HLTH 1000 or HLTH 1001, or permission of the department.

Lecture and seminar three hours a week.

**HLTH 3201 [0.5 credit]****Epidemiology**

Basic concepts of epidemiologic study designs and measures; inferences that are fundamental to the identification of causes and prevalence of diseases. Specialized issues within epidemiology including gene-environment interactions and the clustering of specific disease phenotypes.

Prerequisite(s): STAT 2507 and HLTH 2001, or permission of the department.

Lecture three hours a week, lab/workshop two hours a week.

**HLTH 3302 [0.5 credit]****Immunity and Immune-Related Disorders**

Basic processes relevant to the immune system; the relationship between immune activity and functioning as related to the development of particular pathologies, such as virally-related illness, autoimmune disorders, inflammatory illnesses, and interactions with social and economic factors that promote immune-related disturbances.

Prerequisite(s): HLTH 2002 and BIOL 2200 or permission of the department.

Lecture three hours a week, laboratory four hours a week. Labs require regular participation outside of the scheduled lab time.

**HLTH 3303 [0.5 credit]****Biochemical Basis of Health and Pathology II**

Introduction to the functional properties of macromolecules that underlie cellular and physiological processes.

Examples will be health related.

Prerequisite(s): HLTH 2002.

Lecture three hours a week, lab four hours a week.

**HLTH 3401 [0.5 credit]****Diseases of Childhood**

Epidemiological, psychological and physiological basis for disease in childhood and adolescence. Topics will be discussed from a global and Canadian perspective and include the medicalization of these diseases.

Prerequisite(s): HLTH 2002 and HLTH 2003 or permission of the department.

Lecture three hours a week.

**HLTH 3402 [0.5 credit]****Diseases of Aging**

Aging is accompanied by increased illness related to cardiovascular, immune and neurodegenerative processes. This course assesses the fundamental mechanisms that determine these pathological conditions. Molecular mechanisms and psychosocial determinants; intervention and therapeutic strategies.

Prerequisite(s): HLTH 2002 and HLTH 2003 or permission of department.

Lecture three hours a week.

**HLTH 3403 [0.5 credit]****Gender and Health**

The role of gender on psychosocial and biological mechanisms that alter the course of disease and treatment; health issues unique to women (e.g., reproductive and maternal health); the role of gender across cultures.

Prerequisite(s): HLTH 2001 and HLTH 2003, or permission of the department.

Lecture and seminar three hours a week.

**HLTH 3404 [0.5 credit]****Psychosocial and Biological Interactions in Health**

The psychosocial and biological mechanisms that interact to influence health outcomes. Cultural, political, socioeconomic, and psychological factors that can impact the biological mechanisms underlying both mental and physical health; epigenetic and genetic alterations; implications for psychosocial interventions.

Precludes additional credit for HLTH 4402 (no longer offered).

Prerequisite(s): HLTH 2003 or permission of the department.

Lecture and seminar three hours a week.

**HLTH 3503 [0.5 credit]****Chronic Illness and Disability**

An interdisciplinary view of disabilities related to injury or disease processes including risk factors, the trajectory of such conditions, the burden of health attributable to them, and their global distribution. Strategies for early prevention and health promotion.

Prerequisite(s): HLTH 2002 and HLTH 2003 or permission of the department.

Lecture three hours a week.

**HLTH 3901 [0.5 credit]****Emerging Issues in Biomedical Science**

These courses enable students to develop an understanding of the current state of research and practice in the BHSc concentrations. They provide the opportunity to bring together knowledge from other courses, and for skills development including teamwork, communication and critical thinking.

Prerequisite(s): third-year standing in the specific stream of the B.H.Sc. program appropriate to the course, a major CGPA of at least 8.0 and permission of the Department of Health Sciences.

Seminars three hours a week.

**HLTH 3902 [0.5 credit]****Emerging Issues in Global Health**

These courses enable students to develop an understanding of the current state of research and practice in each of the B.H.Sc. concentrations. They provide the opportunity to bring together knowledge from other courses and for skills development, including teamwork, communication and critical thinking.

Prerequisite(s): third-year standing in the specific stream of the B.H.Sc. program appropriate to the course, a major CGPA of at least 8.0 and permission of the Department of Health Sciences.

Seminars three hours a week.

**HLTH 3903 [0.5 credit]****Emerging Issues in Environment and Health**

These courses enable students to develop an understanding of the current state of research and practice in each of the BHSc concentrations. They provide the opportunity to bring together knowledge from other courses and for skills development, including teamwork, communication and critical thinking.

Prerequisite(s): third-year standing in the specific stream of the B.H.Sc. program appropriate to the course, a major CGPA of at least 8.0 and permission of the Department of Health Sciences.

Seminars three hours a week.

**HLTH 3904 [0.5 credit]****Emerging Issues in Health Throughout the Lifespan**

These courses enable students to develop an understanding of the current state of research and practice in each of the BHSc concentrations. They provide the opportunity to bring together knowledge from other courses and for skills development, including teamwork, communication and critical thinking.

Prerequisite(s): third-year standing in the specific stream of the B.H.Sc. program appropriate to the course, a major CGPA of at least 8.0 and permission of the Department of Health Sciences.

Seminars three hours a week.

**HLTH 3905 [0.5 credit]****Emerging Issues in Disabilities and Chronic Illness**

These courses enable students to develop an understanding of the current state of research and practice in each of the B.H.Sc. concentrations. They provide the opportunity to bring together knowledge from other courses and for skills development, including teamwork, communication and critical thinking.

Prerequisite(s): third-year standing in the specific stream of the B.H.Sc. program appropriate to the course, a major CGPA of at least 8.0 and permission of the Department of Health Sciences.

Seminars three hours a week.

**HLTH 4101 [0.5 credit]****Global Health Governance**

Contemporary issues and debates in global health governance and effects on health monitoring and outcomes at individual and population levels. Historical patterns of global health, its regulatory framework, principal coordinating mechanisms and emerging challenges, and implications of globalization and international trade policies.

Prerequisite(s): HLTH 3101, or permission of the department.

Lecture and seminar three hours per week.

**HLTH 4102 [0.5 credit]****New Health Technologies**

Overview of new and emerging health technologies, including medical and assistive devices, diagnostics and screening, genetics, reproduction, tissue regeneration, imaging, and health informatics. Health technology assessment methods and issues. Regulatory, ethical and social implications; considerations in the developing world.

Prerequisite(s): (HLTH 1000 or HLTH 1001) or permission of the department.

Also offered at the graduate level, with different requirements, as HLTH 5350, for which additional credit is precluded.

Lecture and seminar three hours a week.

**HLTH 4201 [0.5 credit]****Applied Health Statistics**

Statistics concepts and procedures used in the analysis of health data; techniques commonly used to analyze data collected from different types of epidemiological and experimental study designs; how to interpret and present statistical findings.

Prerequisite(s): HLTH 3201 and STAT 2507 or permission of the department.

Lecture three hours a week, lab/workshop two hours a week.

**HLTH 4202 [0.5 credit]****Health Program Evaluation Tools and Methods**

Introduction to concepts, principles and processes of evaluating health care programs and interventions.

Methodological tools including needs assessment, project management skills, use of health information management databases. Issues in communication with stakeholders, including change management and decision making.

Prerequisite(s): HLTH 2001 and STAT 2507 or permission of the department.

Lecture and seminar three hours a week.

**HLTH 4301 [0.5 credit]****Pandemics and Infectious Disease**

Factors that influence disease processes, including viruses, bacteria, protozoa, fungi and infectious agents, how these agents come to have the effects that they do in a given individual, how they spread within and how to limit their spread.

Prerequisite(s): HLTH 2004 or BIOL 2303 or permission of the department.

Lecture three hours a week.

**HLTH 4302 [0.5 credit]****Inflammatory and Endocrine Factors in Diseases**

Inflammatory and hormonal processes and their relevance to disease states. Immune-related disorders, heart disease and stroke, metabolic syndrome, diabetes, psychiatric conditions, and neurodegenerative disorders. The contribution of psychosocial and genetic factors to diseases.

Prerequisite(s): HLTH 3302 or BIOL 4200 or BIOC 4200 or permission of the department.

Lecture three hours a week.

**HLTH 4303 [0.5 credit]****Pharmacotherapeutics**

The pharmaceutical system. Topics include drug discovery and development, clinical trials, pharmacology and pharmacokinetics, natural products and traditional medicines and policy aspects, including patent and generic drugs, the cost of drugs and impact on local and global access.

Prerequisite(s): HLTH 3303 or permission of the department.

Lecture and seminar three hours a week.

**HLTH 4401 [0.5 credit]****Maternal and Prenatal Determinants of Health**

The influence of prenatal events on illnesses. Stressful events, viruses, and toxins encountered during pregnancy; interactions between pre- and postnatal events; economic and psychosocial influences related to maternal care.

Prerequisite(s): HLTH 2002 and HLTH 2003, and at least third-year standing in the B.H.Sc. program or permission of the department.

Lecture three hours a week.

**HLTH 4502 [0.5 credit]****Diseases and Disabilities Related to Sensory Processes and Movement**

Neurobiological processes related to sensation, proprioception, reflex and voluntary movement, disorders of the nervous system and sensory systems. Conditions associated with pathology related to genetic and developmental factors, accident, and aging.

Precludes additional credit for HLTH 3501 (no longer offered).

Prerequisite(s): HLTH 3503 and (BIOL 2005 or BIOL 3305 or BIOL 3306) or permission of the department.

Lecture three hours a week, workshop two hours a week.

**HLTH 4503 [0.5 credit]****Trauma-related Illness and Disability**

Neurobiological and psychological factors associated with trauma and effects on behavioural functioning.

Consequences of traumatic brain injury, burns, amputations, chronic severe illnesses; chronic strain encountered in workplace. Consideration of treatment and rehabilitation strategies.

Precludes additional credit for HLTH 3502 (no longer offered).

Prerequisite(s): HLTH 3503 and (BIOL 2005 or BIOL 3305 or BIOL 3306) or permission of the department.

Lecture three hours a week.

**HLTH 4601 [0.5 credit]****Environmental Pollution and Health**

Introduction to environmental and occupational health; detection, assessment, management and mitigation of chemical, physical and biological hazards.

Prerequisite(s): HLTH 3104 or permission of the department.

Lecture and seminar three hours a week.

**HLTH 4701 [0.5 credit]****Knowledge Translation**

The application of knowledge translation in the formulation of policy and the development of skills required to maximize the impact of scientific findings through real world programs and policies and communication skills for diverse audiences.

Prerequisite(s): fourth-year standing and permission of the Department of Health Science and permission of the instructor.

Also offered at the graduate level, with different requirements, as HLTH 5300, for which additional credit is precluded.

Seminar three hours a week.

**HLTH 4901 [0.5 credit]****Directed Studies in Health**

Independent study, open to third- and fourth-year students to explore a particular health related topic, in consultation with a Faculty supervisor. May include directed reading, written assignments, tutorials, laboratory or field work.

Prerequisite(s): third- or fourth-year standing in the B.H.Sc. program, in addition to permission of the Faculty supervisor and the Department of Health Sciences.

**HLTH 4906 [1.0 credit]****Capstone course – Research Essay**

Independent critical review and research proposal on a health- related topic, using library, database and/or bioinformatics resources, under the supervision of the course instructor. Seminar topics include identification and critical review of resources, development of scientific writing skills, and formulation of health science-related research.

Precludes additional credit for HLTH 4907, HLTH 4908 (no longer offered), HLTH 4909, HLTH 4910.

Prerequisite(s): fourth-year standing in the B.H.Sc. Honours and permission of the Department of Health Sciences.

Lecture/seminar three hours a week.



session and to determine the term of offering, consult the class schedule at [central.carleton.ca](http://central.carleton.ca)

### **HLTH 4907 [1.0 credit]**

#### **Capstone Course – Group Research Project**

A collaborative project on a health related topic. Students, working together as a team, will complete a research project and develop communication and research skills under the supervision of the faculty supervisor. Evaluation will be based on a written report and oral presentation.

Precludes additional credit for HLTH 4906, HLTH 4908 (no longer offered), HLTH 4909, HLTH 4910.

Prerequisite(s): fourth-year standing in the B.H.Sc. Honours program, one of HLTH 3901, HLTH 3902, HLTH 3903, HLTH 3904 or HLTH 3905, a major CGPA of at least 9.0, and permission of the Faculty supervisor and the Department of Health Sciences.

Seminars three hours a week as scheduled by the course instructor; other hours as arranged with the Faculty Adviser.

### **HLTH 4909 [1.0 credit]**

#### **Capstone Course – Field Placement**

Field placement providing practical experience in a health related field. Placements may be in institutional or community settings, governmental or non-governmental organizations. Sites may vary each year. Evaluation based on a written report and an oral presentation.

Precludes additional credit for HLTH 4906, HLTH 4907, HLTH 4908 (no longer offered), HLTH 4910.

Prerequisite(s): fourth-year standing in B.H.Sc. Honours, one of HLTH 3901, HLTH 3902, HLTH 3903, HLTH 3904 or HLTH 3905, a major CGPA of at least 9.0 and permission of the Department of Health Sciences.

Seminars three hours a week as scheduled by the course instructor; other hours as arranged with the Faculty Adviser; field placement hours will vary dependent on placement.

### **HLTH 4910 [1.0 credit]**

#### **Honours Individual Research Thesis**

An independent health related research project under the direct supervision of a faculty member. Evaluation will be based on a written thesis and oral poster presentation (oral or poster).

Precludes additional credit for HLTH 4906, HLTH 4907, HLTH 4908, HLTH 4909.

Prerequisite(s): fourth-year standing in B.Sc. Honours Health Sciences, one of HLTH 3901, HLTH 3902, HLTH 3903, HLTH 3904 or HLTH 3905, a major CGPA of at least 10.0, and permission of the Faculty advisor and the Department of Health Sciences. Permission will depend, in part, on capacity, such that meeting the minimum requirements does not guarantee enrollment in this research thesis course.

**Summer session:** some of the courses listed in this Calendar are offered during the summer. Hours and scheduling for summer session courses will differ significantly from those reported in the fall/winter Calendar. To determine the scheduling and hours for summer session classes, consult the class schedule at [central.carleton.ca](http://central.carleton.ca)

Not all courses listed are offered in a given year. For an up-to-date statement of course offerings for the current