SCHOOL OF BIOMEDICAL SCIENCES

No further information at this time. - TBD

Degree/Diploma	Years to Completion	Total Credit Hours	Has Co-op Option
Health Sciences, B.H.Sc. (https://catalog.umanitoba.ca/undergraduate-studies/health-sciences/medicine/school-of-biomedical-sciences/health-sciences-bhsc/)	4	120	
Health Sciences Minor (https://catalog.umanitoba.ca/undergraduate-studies/health-sciences/medicine/school-of-biomedical-sciences/health-sciences-minor/)			

No further information at this time. - TBD

Courses

Interdisciplinary Health

HEAL 1500 Foundations of Human Biology 1 3 cr
This course starts by describing simple molecules and cells and progressively introduces the student to more sophisticated aspects of human biology. The course will detail the general organization of the human body and describe many of the main systems responsible for its function. Students registered in a Major or Honours program in Biological Sciences can use this course only as an elective.
PR/CR: A minimum grade of C is required unless otherwise indicated.
Prerequisites: Biology 40S (or equivalent) or Chemistry 40S or CHEM 1018.

HEAL 1502 Foundations of Human Biology 2 3 cr
This course will introduce various elements of human biology encompassing the nervous, endocrine, and reproductive systems. It will also provide basic knowledge in genetics and microbiology. Students registered in a Major or Honours program in Biological Sciences can use this course only as an elective.
PR/CR: A minimum grade of C is required unless otherwise indicated.
Prerequisite: HEAL 1500 (C+).

HEAL 1600 Health and Health Professions 3 cr
(Formerly BIOL 1110) Students discuss the Inter-relationship between health, health determinants, and the impact that sciences, health-science, behavioural-social sciences, and technology, have on health care and the health professions. Participants will consider their own role as health care consumers. Not to be held with BIOL 1110.
Equiv To: BIOL 1110
Attributes: Recommended Intro Courses

HEAL 2600 Integration of Health Determinants of Individuals 3 cr
Students study, integrate and apply the determinants that affect the health of individuals throughout the lifespan to selected case or learning scenarios. The case or learning scenarios present a variety of issues in the delivery of health-related services that are intended to benefit individual health.
PR/CR: A minimum grade of C is required unless otherwise indicated.
Prerequisites: One of CHEM 1100 (the former CHEM 1300) or BIOL 1020 or HEAL 1502 or STAT 1000; and [one of PSYC 1200, (PSYC 1211 and PSYC 1221), the former PSYC 1201, or SOC 1000, or the former SOC 1200] or consent of instructor.

HEAL 3000 Introduction to Social Epidemiology 3 cr
This course provides an overview of the basic concepts,principles and methods of social epidemiology and their applications for research and practice from a human ecology perspective. Applications to social determinants of health across the life course may include but are not limited to income and food security, early child development and others. May not be held with the former HMEC 3000.
PR/CR: A minimum grade of C is required unless otherwise indicated.
Prerequisites: HNSC 2000 or PSYC 2250 [or the former HMEC 2000 or the former HMEC 2050] and HEAL 2600 [or the former HMEC 2030].
Equiv To: HMEC 3000

HEAL 3600 Integration of Health Determinants for Communities 3 cr
Students study, integrate and use community level determinants of population health in selected case or learning scenarios. These cases present a variety of issues in the design of health related services that are intended to benefit population health.
PR/CR: A minimum grade of C is required unless otherwise indicated.
Prerequisite: HEAL 2600

HEAL 3610 Mechanisms of Disease 1 3 cr
This course will provide an overview of cellular processes and immunology, followed by an introduction to common processes underlying the development of human diseases. These include: cell injury and death (including metabolism and aging); neoplasia, inflammation; toxins and trauma; genetic diseases and susceptibility; and immune dysregulation. The focus will be on both local and systemic disease processes, and the progression of cells and tissues from a healthy to a pathological state.
PR/CR: A minimum grade of C is required unless otherwise indicated.
Prerequisites: (one of BGEN 2000, BIOL 2520, or BIOL 2521) and (one of CHEM 2740, CHEM 2720, or CHEM 2721) and (one of CHEM 2700, CHEM 2701, MBIO 2700, MBIO 2701, CHEM 2730, MBIO 2730, the former CHEM 2360, the former CHEM 2361, the former MBIO 2360, the former MBIO 2361, the former CHEM 2770, or the former MBIO 2770).

HEAL 4000 Interdisciplinary Health Capstone 3 cr
This senior-level course provides students with the opportunity to integrate the knowledge acquired throughout their studies. The course is student-driven, allowing participants to explore a health topic of their choice in depth and produce original scholarly work under the guidance of a UM faculty member. Topics may encompass a range of fields, including biomedical sciences, clinical research, public health, epidemiology, and health policy. May not be held with the former HEAL 4610 or the former HEAL 4620. For IHP students only.
PR/CR: A minimum grade of C is required unless otherwise indicated.
Prerequisites: Minimum of 90 credit hours completed and consent of instructor.
Equiv To: HEAL 4610, HEAL 4620

HEAL 4004 Health Sciences Practicum 3 cr
This senior-level course provides students with the opportunity to integrate the knowledge acquired throughout their studies. The course is student-driven, allowing participants to explore a health topic of their choice in depth and produce original scholarly work under the guidance of a UM faculty member. Topics may encompass a range of fields, including biomedical sciences, clinical research, public health, epidemiology, and health policy. May not be held with the former HEAL 4610 or the former HEAL 4620. For IHP students only.
PR/CR: A minimum grade of C is required unless otherwise indicated.
Prerequisites: Minimum of 90 credit hours completed and consent of instructor.
Equiv To: FMLY 4300, HMEC 4090

HEAL 4600 Integration of Health Determinants for Canada and the World 3 cr
Students use selected case or learning scenarios to study the determinants of population health that depend on decision making in governmental or international agencies. The case scenarios present a variety of issues in the governance and management of population health.
PR/CR: A minimum grade of C is required unless otherwise indicated.
Prerequisite: HEAL 3600 (C+).

HEAL 4610 Health Studies Capstone 3 cr
Students will explore selected topics from the social sciences to synthesize and evaluate actions that can affect the health of people. The course summarizes the social sciences knowledge that forms the basis for all health related professional work. Restricted to students in the Health Studies program. May not be held with HEAL 4620.
PR/CR: A minimum grade of C is required unless otherwise indicated.
Prerequisite: HEAL 3600 (C+) and 57 credit hours in the Curriculum for Interdisciplinary Health or consent of instructor.
Equiv To: HEAL 4620

HEAL 4620 Health Sciences Capstone 3 cr
Students will explore selected topics from the biological sciences to synthesize and evaluate actions that can affect the health of people. The course summarizes the biological science knowledge that forms the basis for all health related professional work. Restricted to students in the Health Sciences program. May not be held with HEAL 4610.
PR/CR: A minimum grade of C is required unless otherwise indicated.
Prerequisite: HEAL 3600 (C+) and 57 credit hours in the Curriculum for Interdisciplinary Health or consent of instructor. Equiv To: HEAL 4610
Equiv To: HEAL 4610

HEAL 4630 Mechanisms of Disease 2 3 cr
This course will expand upon the concepts learned in HEAL 3610 by exploring systemic diseases. The focus will be on understanding how some disease processes are not constrained by individual tissues and/or organs and may progress to affect the patient systemically. Specific diseases such as cancer, diabetes, multiple sclerosis, and HIV will be used as examples. For Bachelor of Health Sciences students only.
PR/CR: A minimum grade of C is required unless otherwise indicated.
Prerequisite: HEAL 3610 (B).

HEAL 4640 Mechanisms of Disease 3 6 cr
(Lab required) Students will learn experimental techniques commonly used in modern biomedical science through lectures and laboratory sessions. Students will have the opportunity to conduct hands-on experiments in a modern research setting by rotating through five laboratory modules that will explore biomedical science methods such as histology and microscopy, cell culture, molecular biology, systems biology and proteomics, and HLA genotyping. These modules will be based on the diseases discussed in HEAL 4630, and will allow students to establish a direct connection between their experimental work and disease mechanisms. For students in the Bachelor of Health Sciences program only.
PR/CR: A minimum grade of C is required unless otherwise indicated.
Prerequisites: HEAL 4630 (B) and HEAL 3610 (B) and instructor permission required.

HEAL 4650 Research Project in Interdisciplinary Health 3 cr
Students will complete an individual research project in a health-related field under the supervision of a UM Faculty member. Projects will be based on the supervisor's research program. Students will perform the required research, complete data analysis, and produce a final written report that will be evaluated by the supervisor. Students may take this course twice, for a maximum of 6 credit hours. May not be held with HEAL 4652. For IHP students only.
PR/CR: A minimum grade of C is required unless otherwise indicated.
Prerequisites: Consent of Instructor and a minimum of 60 credit hours completed.
Mutually Exclusive: HEAL 4652

HEAL 4652 Advanced Research Project in Interdisciplinary Health 6 cr
Students will complete an individual research project in a health-related field under the supervision of a UM faculty member over two successive academic terms. Projects will be based on the supervisor's research program. Students will perform the required research, complete data analysis, and produce a final written report and oral presentation that will be evaluated by the supervisor. For IHP students only. May not be held with HEAL 4650.
PR/CR: A minimum grade of C is required unless otherwise indicated.
Prerequisites: Consent of Instructor and Program Director and a minimum of 60 credit hours completed.
Mutually Exclusive: HEAL 4650