

# HEALTH SCIENCES STUDIES AS A SECONDARY MAJOR

Students who plan to apply to graduate clinical and medical training programs can benefit from a Health Sciences Studies (HSCI) secondary major. This collection of specialized courses provides students with the additional knowledge, vocabulary, and skills valued by professional schools and future employers. Students preparing for application and admission to professional schools including dentistry, medicine, optometry, pharmacy, occupational and physical therapy, among others, gain mastery of material covered on standardized entrance exams and interviews. The learning outcomes for this major fulfill the core entry level competencies required by professional health programs.

**The Health Science Studies major is open to all UM-D students and must be pursued as a *secondary major* in conjunction with the primary major in their College.**

Health Science Studies students must select one of two concentrations; Pre-Medicine Concentration or Pre-Dental & Clinical Concentration.

For further information about Health Science Studies as a Secondary Major, contact your academic advisor.

## Dearborn Discovery Core (General Education)

All students must satisfy the University's Dearborn Discovery Core requirements ([https://catalog.umd.umich.edu/undergraduate/gen\\_ed\\_ddc/](https://catalog.umd.umich.edu/undergraduate/gen_ed_ddc/)), in addition to the requirements for the major. Students must also complete all CASL Degree Requirements. (<https://catalog.umd.umich.edu/undergraduate/college-arts-sciences-letters/>)

## Prerequisites to the Major

Code	Title	Credit Hours
BIOL 130	Intro Org and Environ Biology	4
BIOL 140	Intro Molec & Cellular Biology	4
CHEM 134	General Chemistry IA	4
CHEM 136	General Chemistry IIA	4
PSYC 101	Introduction to Psychology	3
Select one of the following two course sequences: <sup>*check with advisor for recommended option</sup> 7-8		
PHYS 125 & 125L & PHYS 126 & PHYS 126L	Introductory Physics I and Introductory Physics I Lab/Dis and Introductory Physics II and Intro Physics II Lab/Dis	
PHYS 150 & 150L & PHYS 151 & PHYS 151L	General Physics I and General Physics I Lab/Dis and General Physics II and General Physics II Lab/Dis	
PHYS 125 & 125L & HHS 201	Introductory Physics I and Introductory Physics I Lab/Dis and Medical Terminology <sup>*PHYS 150 and 150L may substitute for PHYS 125 and 125L</sup>	
BIOL 203 & 203L & HHS 201	Anatomy and Physiology I and Anatomy and Physiology I Lab and Medical Terminology	

Select one MATH course from the following:

MATH 101	Trigonometry for Calculus	4
or MATH 104	College Algebra	
or MATH 105	Pre-Calculus	
or MATH 115	Calculus I	

Select two courses from the following:

COMP 105	Writing & Rhetoric I	6
or COMP 111	Honors Writing & Rhetoric I	
COMP 106	Writing & Rhetoric II	
or COMP 220	Honors Writing & Rhetoric II	
or COMP 270	Tech Writing for Engineers	
or COMP 280	Business Writing & Rhetoric	
SPEE 101	Principles of Speech Comm	
COMP 327	Advanced Writing	

**Total Credit Hours** 36-37

## Major Requirements

This major requires a total of 34-48 credit hours.

Code	Title	Credit Hours
------	-------	--------------

### Major Core Requirements

CHEM 225 & CHEM 226 & CHEM 227	Organic Chemistry I and Organic Chemistry II and Organic Chemistry Laboratory	10
--------------------------------	---	----

Select one course from the following:

STAT 263	Introduction to Statistics <sup>1</sup>	3-4
or STAT 301	Biostatistics I	
or STAT 325	Applied Statistics I	
or PSYC 381	Prin of Stat and Exper Design	
or BENG 364	Prob&Stat in Bioengineering	
or HHS 410	Quantitative Research and Statistics	

**HSCI students must select one of the following concentrations and complete all of the requirements in the concentration: Pre-Medicine Concentration or Pre-Dental & Clinical Concentration.**

**Total Credit Hours** 34-48

<sup>1</sup> SOC 410 is a crosslist course for HHS 410.

## Concentrations

### Pre-Dental & Clinical Concentration

The Pre-Dental & Clinical Concentration is appropriate for students interested in pursuing professional degrees in Dentistry and other clinical programs including Physicians Assistant, Ophthalmology, Physical or Occupational Therapy, among others.

Code	Title	Credit Hours
------	-------	--------------

### Concentration Core

BIOL 285 & 285L	Microbiology and Microbiology Laboratory	4
BCHM/BIOL/ CHEM 370	Principles of Biochemistry <sup>1</sup>	4
or BCHM 470	Biochemistry I	

Select one anatomy and physiology sequence:		8-10
BIOL 203 & 203L & BIOL 205 & BIOL 205L	Anatomy and Physiology I and Anatomy and Physiology I Lab and Anatomy and Physiology II and Anatomy and Physiology II Lab	
BIOL 203 & 203L & BIOL 317 & BIOL 318	Anatomy and Physiology I and Anatomy and Physiology I Lab and Advanced Human Anatomy & Physiology and Advanced Human Anatomy & Physiology Lab	
<b>Concentration Electives</b>		
Select 14-16 credit hours from the following:		14-16
BCHM/BIOL/ CHEM 471	Biochemistry II <sup>1</sup>	
BIOL 306	General Genetics	
BIOL 310	Histology	
BIOL 357	Human Physiology	
BIOL/MICR 455	Immunology	
HHS 201	Medical Terminology	
HHS/PHIL/ LIBS 442	Medical Ethics	
PHIL 233	Critical Thinking	
PSYC 300	Life-Span Developmental Psych	
SOC 200	Understanding Society	
<b>Total Credit Hours</b>		<b>30-34</b>

<sup>1</sup> If BCHM 470 is selected in place of BCHM 370, then BCHM 471 must be completed as an elective.

**Note:** Courses in the concentration do not automatically share with their first major. Students must talk to their academic advisor regarding sharing courses.

## Pre-Medicine Concentration

The Pre-Medicine Concentration is appropriate for students interested in pursuing professional degrees in Medicine, Veterinary, or Genetic Counseling.

Code	Title	Credit Hours
<b>Concentration Core</b>		
SOC 200	Understanding Society	3
Select one course from the following:		4
BIOL 285 & 285L	Microbiology and Microbiology Laboratory	
BCHM/BIOL/ CHEM 370	Principles of Biochemistry <sup>1</sup>	
	or BCHM 470 Biochemistry I	
<b>Concentration Electives</b>		
Select 14-16 credit hours from the following:		14-16
BCHM/BIOL/ CHEM 471	Biochemistry II <sup>1</sup>	
BIOL 203 & 203L	Anatomy and Physiology I and Anatomy and Physiology I Lab	
BIOL 205 & 205L	Anatomy and Physiology II and Anatomy and Physiology II Lab	

BIOL 285 & 285L	Microbiology and Microbiology Laboratory	
BIOL 303	Comparative Animal Physiology	
BIOL 306	General Genetics	
BIOL 310	Histology	
BIOL 317	Advanced Human Anatomy & Physiology	
BIOL 318	Advanced Human Anatomy & Physiology Lab	
BIOL 357	Human Physiology	
BIOL/MICR 455	Immunology	
HHS 201	Medical Terminology	
HHS/PHIL/ LIBS 442	Medical Ethics	
PHIL 233	Critical Thinking	
PHIL 240	Ethics	
PSYC 300	Life-Span Developmental Psych	
<b>Total Credit Hours</b>		<b>21-23</b>

<sup>1</sup> If BCHM 470 is selected in place of BCHM 370, then BCHM 471 must be completed as an elective.

**Note:** Courses in the concentration do not automatically share with their first major. Students must talk to their academic advisor regarding sharing courses.

## Learning Goals

- Foundation in Biological and Physical Sciences:
  - Demonstrate understanding of the biological, physical, and chemical sciences, and apply this knowledge to the practice of health professions.
- Ethics and Professionalism:
  - Apply ethical behavior and professional conduct in various settings, including identifying ethical dilemmas, applying ethical principles, and acting with integrity and respect.
- Communication Skills:
  - Exhibit effective communication skills suitable for diverse healthcare settings, including patient education, team collaboration, empathy, and cultural humility.
- Critical Thinking and Problem Solving:
  - Apply critical thinking and problem-solving skills to identify and address challenges in health professions practice.
- Research and Evidence-Based Practice:
  - Critically appraise and analyze research findings, including quantitative reasoning, to inform evidence-based practice and contribute to the advancement of knowledge in the field.