



## Health Science

### FOR INFORMATION CONTACT

Teri Miller  
Liberal Arts Building, Room 308  
Direct: (313) 927-1333  
E-mail: tmiller@marygrove.edu

### PROGRAMS OFFERED

Bachelor of Science, Health Science Interdisciplinary Major (B.S.)

### POTENTIAL CAREERS

Nursing or nurse's assistant, histotechnologist, radiology technician, physical therapist, dental hygienist, hospital clerk, medical record keeper, medical lab assistant, medical laboratory technologist, health care manager/administrator.

### FACULTY

Jeanne Andreoli, Ph. D  
Mary Lynam, Ph. D  
Donald Rizzo, Ph. D  
Steve Scribner, Ph. D  
Sally Welch, Ph. D

### OVERVIEW

#### GENERAL INFORMATION

If you have a passion for science and helping others, a career in health sciences could be for you. The Bachelor of Science degree program with a major in Health Science is designed to provide the student with a broad-based science curriculum with interdisciplinary components for those students seeking employment in a health-related field. Graduates will be prepared to enter the workplace, receive additional career-specific training, or pursue a graduate or doctoral degree if desired. As a pre-professional program, the B.S. Health Sciences is designed to provide the foundational degree for those wishing to pursue graduate education in the health sciences, health professions, or health care administration. For those students who do not wish to go on to graduate study, opportunities exist for positions in the biological or health sciences, or administration.

#### SPECIFIC INFORMATION

The Bachelor of Science degree program with an interdisciplinary major in Health Science is designed to provide you with a broad-based science curriculum. Program course requirements span across, biology, chemistry, mathematics, psychology, philosophy and nursing.

You will experience laboratory investigations and observations, field work, individual research projects with a faculty member, and preparation of library and laboratory research papers.

#### SPECIAL ELEMENTS OF THE PROGRAM

##### Academic Performance

Only required courses with a grade no lower than a C can be applied to fulfill the Health Science degree. You must complete the following required pre-nursing courses or transfer equivalents\*\* with a grade of at least a 2.5 **and** maintain a minimum overall grade point average in these courses of 3.00 or "B" (on a 4.0 scale): BIO 118, BIO 150, BIO 267, BIO 321, CHM 130, CHM 230, PSY 321, ENG 108, PHL 126, PHL 225/228, MTH 103.

##### Standardized National Assessment Exam

All students majoring in Health Science must participate in a National Assessment Instrument (i.e., MTTC, GRE, MCAT, ACS, PAX-RN) prior to graduation.

## **Accelerated Second Degree in Nursing (BSN) in partnership with Oakland University School of Nursing**

Marygrove offers a Bachelor of Science (B.S.) in Health Science that contains all of the prerequisites for Oakland University's nursing program: Accelerated Second-Degree Bachelor in Science Nursing (BSN). For students who successfully complete the Health Science degree at Marygrove and pre-nursing admissions requirements\*, Oakland University guarantees placement in an accelerated one-year program of study leading to a BSN degree. Students will take the Oakland portion of this partnership at off-campus sites to better serve the needs of the metropolitan community. Once completed students are eligible to sit for the NCLEX-RN exam, and will have obtained two bachelor degrees.

Students must be in good standing at Marygrove College (minimum overall grade point average of 2.0) and meet all of the pre-admission screening requirements to qualify for admission into the Accelerated Second Degree BSN Program at Oakland University's School of Nursing. Note that completion of the minimum requirements does not guarantee admission to the nursing program. Depending upon the applicant pool, preference for admission may be given to students who have completed more than 30 credit hours of pre-nursing courses at Marygrove College with a grade point average of 3.0 or better.

Applications for admission to the Bachelor of Science in Nursing (BSN) degree program are accepted year round from students who have satisfied all pre-nursing admission requirements or are in their final semester of completing them. Students are encouraged to apply during the semester in which they are completing pre-nursing admission requirements. Applications will be considered for the Fall (September), Winter (January) and Spring/Summer (May) entry semesters on a rolling basis throughout the year.

\*Pre-nursing admissions requirements include (1) letter of application, (2) recommendation letters from 3 individuals, (3) successful completion of the PAX-RN Pre-Nursing exam, (4) pre-nursing coursework.

The PAX-RN exam measures the student's academic aptitude in the areas of verbal ability, mathematics, and science. It will be used by the Science and Mathematics Department for screening and recommendation purposes. You must achieve at or above the 30th percentile score in each of the test components, verbal ability, mathematics, and science AND at or above the 40th percentile composite score to be considered for the Accelerated Second Degree nursing program. The test must be taken, and the official results must be on file in your MGC student record by the screening deadline for the term for which you are applying.

Before being considered for admission into the Accelerated Second Degree BSN program, you must complete the following required pre-nursing courses or transfer equivalents\*\* with a grade of at least a 2.5 **and** maintain a minimum overall grade point average in these courses of 3.00 or "B" (on a 4.0 scale): BIO 118, BIO 150, BIO 267, BIO 321, CHM 130, CHM 230, PSY 321, ENG 108, PHL 126, PHL 225/228, MTH 103. These courses will be used in the calculation of your pre-nursing grade point average.

\*\* Criteria for transfer students vary. Please refer to the Oakland University Transfer Course Equivalency for the Pre-Nursing Program guide at <http://www.oakland.edu/?id=5010&sid=166> , and the Marygrove College Transfer Admissions Guide for the Pre-nursing program

## **BACHELOR OF SCIENCE, HEALTH SCIENCE GROUP MAJOR (B.S.)**

The Bachelor of Science with a Health Science group major requires 50 credit hours and completion of the following components:

### ***A. General Education Requirements***

See page 61.

### ***B. Required Core Courses***

BIO 118 Medical terminology  
BIO 150 Biology I: From Molecules to Cells  
BIO 267 Clinical Anatomy and Physiology  
BIO 321 Microbiology  
CHM 130 Chemical Science  
CHM 230 Introduction to Organic and Biological Chemistry  
MTH 103 Health Science Mathematics  
PHL 126 Persons and Values  
PHL 225 Ethics  
or  
PHL 228 Ethics in the Health Professions  
PSY 321 Introduction to Lifespan Psychology  
NRS 320 Nutrition in Nursing Practice  
NRS 327 Pathophysiology in Nursing  
NRS 408 Pharmacology in Nursing  
HSC 312 Junior Seminar: Speaking and Writing in Science  
HSC 496a Senior Seminar: Library Research  
HSC 496 b Senior Seminar: Laboratory Research

### ***C. Other Experiences***

Credit by examination (C.L.E.P.), tutorial study and cooperative work experiences are other features of the program. Permission of the department head is required to select these options. Not more than four credit hours in cooperative work experience may be counted within the 128 credit hours required for a degree.

### ***D. Standardized National Assessment Exam***

All students majoring in Health Science must participate in a National Assessment Instrument (i.e., MTTC, GRE, MCAT, ACS, PAX-RN) prior to graduation.

In addition, all majors must complete a research experience approved by the department. This typically may include a summer undergraduate research experience either with a Marygrove College faculty member (HSC 491) or an off-campus internship or fellowship (HSC 388 or HSC 491).

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## **COURSE DESCRIPTIONS**

### **BIO 118 Medical Terminology 2 hours**

Prerequisites: None; Term: 2

Aims to develop facility in spelling and interpreting medical terms.

### **BIO 150 Biology I: From Molecules to Cells 4 hours**

Prerequisites: Completion of developmental and foundation courses; Term: 1, Fee: yes.

Biology 150 is a course which, together with Biology 151, is designed to give the student a broad experience in the biological sciences. This course emphasizes the cellular and molecular aspects of biology. Science majors, including many health professionals, are the intended audience. Laboratory included.

- BIO 267 Clinical Anatomy and Physiology 4 hours**  
*Prerequisites: Completion of developmental and foundation courses, BIO 150; Term :2; Fee: yes.*  
Basic human anatomy and physiology with clinical emphasis, specifically for pre-nursing students. Lectures are closely tied to laboratory activities. Computerized simulations (e.g. ADAM) are used to teach and test anatomy.
- BIO 321 Microbiology 4 hours**  
*Prerequisites: BIO 150, one semester of college chemistry; Term: 1; Fee: yes. Offered alternate years*  
Microorganisms with emphasis on bacteria and viruses, form, structure, reproduction, genetics, physiology, metabolism and identification, disease, transmission and control. Lab included. Written lab reports required.
- CHM 130 Chemical Science 4 hours**  
*Prerequisites: Completion of developmental and foundational courses and ENG 107; Term 1; Fee yes. General Education option*  
A descriptive and mathematical look at chemistry. Conceptual development and problem solving are emphasized. Introduction of concepts of chemistry, language and theories for general and organic chemistry. Study of atomic theory, acid-base theories, mole concept and biological molecules. Lab included.
- CHM 230 Introduction to Organic and Biological Chemistry 4 hours**  
*Prerequisites: CHM 130; Term 2; Fee: yes;*  
Brief survey of organic and biological chemistry, emphasizing applications to human physiology. CHM 201 may not be used for major or minor credit in chemistry or biology.
- MTH 103 Health Science Mathematics 3 hours**  
*Prerequisites: MTH 099; Term 1*  
Applies basic mathematical skills in calculations required for the usual dosage determinations, as well as solution preparations using weight, metric, household, and apothecary systems. Discussion on applying ratio and proportion, allegations, and business calculations in pharmacy operations.
- PHL 126 Persons and Values 3 hours**  
*General Education option. Prerequisites: None. Offered every term.*  
Introduction to philosophy by way of a critical examination of some classic problems that shape human experience, which may include issues concerning the nature of reality, human knowledge, the nature of the self, the nature of justice, and the nature of the good.
- PHL 225 Ethics 3 hours**  
*Prerequisites: LS 105, ENG 108.*  
Introduction to normative moral philosophy through a survey of the major positions and thinkers in the history of ethics. The course also examines how these ideas and theories can be adapted to address the ethical dilemmas that confront persons and societies today.
- PHL 228 Ethics in the Health Professions 3 hours**  
*Prerequisite: LS 105 or equivalent*  
Survey of basic ethical considerations in contemporary issues in the health care professions. Case studies highlight the legal and moral aspects of patients' rights, care of the newborn, quality of life, geriatric care and transplant surgery.
- PSY 321 Introduction to Life-Span Psychology 4 hours**  
*Prerequisites: PSY 205*  
A survey of principal cognitive, social and behavioral processes that operate across the lifespan.
- NRS 320 Nutrition in Nursing Practice 2 hours**  
*Prerequisite: Admission into the Science and Mathematics Department or permission of instructor.*  
Presents knowledge and skills necessary to determine nutritional needs, status, and habits throughout the life span and health- illness continuum.

**NRS 327 Pathophysiology 3 hours**  
Prerequisite: BIO 150, BIO 267; NRS 320 and admissions into the Science and Mathematics Department.  
Presents biological and physiological functional deviations that can occur throughout the life span

**NRS 408 Pharmacology in Nursing 3 hours**  
Prerequisite: BIO 150; BIO 267; NRS 327  
Presents pharmacological rationale and interventions in health and illness. Includes implications for specific drugs.

**HSC 312 Junior Seminar: Speaking and Writing in Science 3 hours**  
Prerequisites: Junior standing in the major, ENG 312; Term 2; Fee: yes  
A writing-intensive course designed to expose the student to scientific writing, the origins of scientific writing, and the scientific format of a research paper. The student will learn how to prepare and interpret data for the Results section of a paper, write the Abstract/Conclusion, Introduction, Discussion, Methods, and References sections of a scientific research paper. In preparation for their senior research project, students will learn how to do a literature research survey. In addition, students will present their paper orally.

**HSC 388 Cooperative Field Experience 1-4 hours**  
Prerequisites: Junior standing, biology major, departmental approval;  
Term: 1, 2, summer  
Supervised work experience in activity related to an area of specialization. This is planned in consultation with advisor, co-op supervisor and employer. Recording, reporting and evaluation of experience will be required.

**HSC 491 Independent Study 1-4 hours**  
Prerequisites: Permission of instructor; biology major or minor; Junior status;  
Term: 1, 2  
Opportunity to earn credit for the independent study of a course not listed in the catalog as a specific offering. By arrangement.

**HSC 496a Senior Seminar: Library Research 2 hours**  
Prerequisite: senior standing, HSC 312; Fee: no; Term 1  
Investigation of a significant health science problem with the direction of a faculty member. Develop research proposal, perform the trial run on experiments. Use of computer for informational searches, data analysis, and word processing; oral presentations and final research paper required.

**HSC 496b Senior Seminar: Laboratory Research 2 hours**  
Prerequisite: senior standing, HSC 496a; Fee: yes; Term 2  
Investigation of a significant health problem with the direction of a faculty member. Develop experimental procedures, perform the planned experiments. Collect and present data in appropriate forms. Use of computer for informational searches, data analysis, and word processing; oral presentations and final research paper required.