BIOMEDICAL SCIENCES, BS: PUBLIC HEALTH MICROBIOLOGY

Students in the Biomedical Sciences major are awarded a Bachelor of Science degree upon completion of all requirements. Students choose from one of the following seven areas or submajors:

- Medical Laboratory Science
- Biomedical Science
- Cytotechnology
- Radiologic Technology
- Diagnostic Medical Sonography
- Diagnostic Imaging (degree completion program)
- Health Science (degree completion program)
- Public Health Microbiology

All students will be required to comply with a background check, drug screen, and maintain health insurance during the professional training experience.

Public Health Microbiology

Public health microbiology prepares students for a career in the laboratory disciplines of public health. Specifically, students will be educated in a broad range of sciences in order to perform investigatory and laboratory-based analyses of environmental samples for microbial contaminants of interest. Emphasis is placed on pathogenic disease and the human populations that they affect. Graduates can work in a variety of settings, such as public health, hospital and research laboratories. Students successfully completing this program may sit for the American Society for Clinical Pathology (ASCP-BOC) Technologist in Microbiology national certification exam.

Requirements

Students in the Biomedical Sciences major are awarded a Bachelor of Science degree upon completion of all requirements. All students, with the exception of students in the Diagnostic Imaging or Health Sciences degree completion program, will be required to comply with a background check and maintain health insurance during the professional training experience.

The process of application to the professional training occurs at the end of the first semester of the junior year.

The minimum degree requirement is 120 credits including the following. Entry into professional training is competitive and dependent upon completing the requirements below. The program will attempt to place all students who meet academic requirements but cannot guarantee that every student will be placed in a clinical rotation.

1. Completion of UWM's General Education Requirements (GER) (https://catalog.uwm.edu/policies/undergraduate-policies/#bachelorsdegreegeneraleducation);
2. A cumulative UWM minimum grade point average of 2.5;
3. A cumulative minimum grade point average of 2.5 in specific, required science courses;
4. Completion of:
    a. all required courses and electives (87 credits) through the second semester of junior year for students pursuing Cytotechnology;
    b. all required courses and electives (114 credits) through the first semester of senior year for students pursuing Public Health Microbiology; and
5. A grade of C or better in all junior-level courses.

Students who meet these minimum requirements for entry into professional training will be evaluated on the basis of their science GPA for placement at one of the training sites.

To remain eligible to continue in the professional training, students must earn a grade of C or better in all senior-level courses.

Degree Requirements

Code	Title	Credits
University Core		
Competency Requirements		
Oral and Written Communication (OWC) Part A & B		
Quantitative Literacy (QL) Part A & B		
Foreign Language		
Distribution Requirements		
Arts		3
Cultural Diversity		3
Humanities		6
Natural Sciences		6
Social Sciences		6
Biomedical Science Core		
BIO SCI 150	Foundations of Biological Sciences I [1]	4
BIO SCI 202	Anatomy and Physiology I [1]	4
BIO SCI 203	Anatomy and Physiology II [1]	4
BIO SCI 325	Genetics [1]	4
BIO SCI 383	General Microbiology [1]	4
BMS 205	Foundations of Diagnostic Science: Exploring Health, Technology, and Ethics	3
BMS 301 & BMS 302 & BMS 303 & BMS 304 & BMS 305	Human Pathophysiology: Fundamentals and Human Pathophysiology: Organ Systems I and Human Pathophysiology: Organ Systems II and Human Pathophysiology: Organ Systems III and Human Pathophysiology: Organ Systems IV [1]	5
BMS 427	Clinical Immunology [1]	3
BMS 428	Clinical Immunology Laboratory [1]	1
BMS 534	Medical Microbiology	3
BMS 535	Medical Microbiology Laboratory	2
BMS 536	Applied Clinical Microbiology	2
BMS 537	Medical Parasitology and Mycology	2
BMS 560	Molecular and Genetic Diagnostics	2
BMS 561	Molecular Diagnostics Laboratory	1
CHEM 102	General Chemistry [1]	5
CHEM 104	General Chemistry and Qualitative Analysis [1]	5

CHEM 341	Introductory Survey of Organic Chemistry [1]	3
CHEM 342	Introductory Organic Chemistry Laboratory [1]	2
CHEM 501	Introduction to Biochemistry [1]	3
HCA 224	Computational Tools for Healthcare Professionals	3
KIN 270	Statistics in the Health Professions: Theory and Practice [2]	3

[1] Course counts towards a student's science GPA.
[2] MTHSTAT 215 may substitute for KIN 270.

Public Health Microbiology Requirements

Students in the Public Health Microbiology submajor complete an eight-week internship with the City of Milwaukee Health Department. The process of application to the professional training occurs at the end of the first semester of the junior year.

Code	Title	Credits
BIO SCI 405	General Virology	3
BMS 201	Sexually Transmitted Diseases and AIDS	3
BMS 531	Advanced Lectures in the Clinical Laboratory Sciences	1
BMS 538	Advanced Clinical Microbiology Practicum	3
BMS 539	Public Health Microbiology	2
BMS 540	Public Health Microbiology Lab	2
BMS 547	Clinical Laboratory Diagnosis	2
BMS 548	Clinical Laboratory Practice	2
BMS 549	Professional Development in Clinical Laboratory Sciences	3
BMS 555	Toxicology and Therapeutic Drug Monitoring	1
CHPS 101	Introduction to Health and Disease	2
CHPS 222	Language of Medicine	3
CHPS 245	Client Diversity in Health Sciences: An Interdisciplinary Perspective [1]	3
ENGLISH 205	Business Writing	3
HCA 212	Drugs Used and Abused	3
HCA 307	Epidemiology for the Health Sciences	3
HCA 311	Law and Ethics for Healthcare Professionals	3
Electives		8

[1] NURS 101 may be substituted for CHPS 245.

Plan of Study

Year 1		
Semester 1		**Credits**
BIO SCI 202	Anatomy and Physiology I	4
CHEM 102	General Chemistry	5
CHPS 101	Introduction to Health and Disease	2
CHPS 222	Language of Medicine	3
	Credits	**14**
Semester 2		
BIO SCI 203	Anatomy and Physiology II	4
CHEM 104	General Chemistry and Qualitative Analysis	5
HCA 224	Computational Tools for Healthcare Professionals	3
GER Elective: Arts		3
	Credits	**15**
Year 2		
Semester 1		
BIO SCI 150	Foundations of Biological Sciences I	4
BMS 205	Foundations of Diagnostic Science: Exploring Health, Technology, and Ethics	3
BMS 301	Human Pathophysiology: Fundamentals	1
BMS 302	Human Pathophysiology: Organ Systems I	1
BMS 303	Human Pathophysiology: Organ Systems II	1
CHEM 341	Introductory Survey of Organic Chemistry	3
CHEM 342	Introductory Organic Chemistry Laboratory	2
	Credits	**15**
Semester 2		
BIO SCI 325	Genetics	4
BMS 201	Sexually Transmitted Diseases and AIDS	3
CHPS 245	Client Diversity in Health Sciences: An Interdisciplinary Perspective	3
BMS 304	Human Pathophysiology: Organ Systems III	1
BMS 305	Human Pathophysiology: Organ Systems IV	1
KIN 270	Statistics in the Health Professions: Theory and Practice (QLB) [1]	3
	Credits	**15**
Year 3		
Semester 1		
BIO SCI 383	General Microbiology	4
BMS 427	Clinical Immunology	3
BMS 428	Clinical Immunology Laboratory	1
CHEM 501	Introduction to Biochemistry	3
HCA 212	Drugs Used and Abused	3
	Credits	**14**
Semester 2		
BMS 534	Medical Microbiology	3
BMS 535	Medical Microbiology Laboratory	2
BMS 560	Molecular and Genetic Diagnostics	2
BMS 561	Molecular Diagnostics Laboratory	1
HCA 307	Epidemiology for the Health Sciences	3
HCA 311	Law and Ethics for Healthcare Professionals	3
ENGLISH 205	Business Writing (OWCB)	3
	Credits	**17**
Summer		
BMS 536	Applied Clinical Microbiology	2
BMS 537	Medical Parasitology and Mycology	2
Electives		4
	Credits	**8**
Year 4		
Semester 1		
BMS 539	Public Health Microbiology	2
BMS 540	Public Health Microbiology Lab	2
BMS 547	Clinical Laboratory Diagnosis	2
BMS 555	Toxicology and Therapeutic Drug Monitoring	1
BIO SCI 405	General Virology	3
GER Elective: Humanities		3
	Credits	**13**
Semester 2		
BMS 531	Advanced Lectures in the Clinical Laboratory Sciences	1
BMS 538	Advanced Clinical Microbiology Practicum	3
BMS 548	Clinical Laboratory Practice	2

BMS 549	Professional Development in Clinical Laboratory Sciences	3
GER Elective: Humanities		3
	Credits	**12**
	Total Credits	**123**

[1] MTHSTAT 215 may be substituted for KIN 270.

Biomedical Sciences BS: Public Health Microbiology Learning Outcomes

Students graduating from the Biomedical Sciences-Public Health Microbiology (BMS-PHM) program will be able to:

- Apply laboratory testing theory and perform laboratory techniques across the disciplines of diagnostic microbiology laboratory testing.
- Practice professional conduct and identify the significance of continuing professional development.
- Communicate sufficiently to serve the needs of patients, the public, and members of the healthcare team.
- Identify and apply educational methodologies and terminologies sufficient to train/educate users and providers of laboratory services.
- Comply with the safety and governmental regulations and standards as applied to public health microbiology.
- Analyze principles and practice of research design, implementation and dissemination of results.
- Identify principles and practices of administration and supervision as applied to laboratory practice.

Honors in the Major

Honors in the major are granted to students who earn a GPA of 3.500 or above on a minimum of 30 completed credits at UWM.

College of Health Professions and Sciences Dean's Honor List

GPA of 3.500 or above, earned on a full-time student's GPA on 12 or more graded credits in a given semester.

Honors College Degree and Honors College Degree with Distinction

Granted to graduating seniors who complete Honors College requirements, as listed in the Honors College (https://catalog.uwm.edu/honors-college/) section of this site.

Commencement Honors

Students with a cumulative GPA of 3.500 or above, based on a minimum of 40 graded UWM credits earned prior to the final semester, will receive all-university commencement honors and be awarded the traditional gold cord at the December or May Honors Convocation. Please note that for honors calculation, the GPA is **not** rounded and is truncated at the third decimal (e.g., 3.499).

Final Honors

Earned on a minimum of 60 graded UWM credits: Cum Laude - 3.500 or above; Magna Cum Laude - 3.650 or above; Summa Cum Laude - 3.800 or above.