

# BIOMEDICAL SCIENCES, BS: MEDICAL LABORATORY SCIENCE

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, with the exception of students in the Diagnostic Imaging or Health Sciences degree completion program, will be required to comply with a background check, drug screen, and maintain health insurance during the professional training experience.

## Medical Laboratory Science

Medical laboratory scientists are trained in the theoretical and practical aspects of laboratory medicine, which are critical to the detection, diagnosis, and treatment of diseases. Medical Laboratory Science offers a wide variety of career options, including hospitals, clinics, independent laboratories, public health facilities, business, industry, research, sales, and marketing. Students also may use this major to prepare for medical or graduate school. Students successfully completing this program are eligible to sit for a national certification exam offered by the American Society for Clinical Pathology (ASCP-BOC). The UWM Medical Laboratory Science Program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS), [www.naacls.org](http://www.naacls.org) (<http://www.naacls.org>), located at 5600 N. River Road, Suite 720, Rosemont, IL 60018-5119.

## 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.

Entry into professional training or internship is competitive and dependent upon:

1. Completion of UWM's General Education Requirements (GER) (<http://catalog.uwm.edu/policies/undergraduate-policies/#generaleducationtext>);
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, or Medical Laboratory Science;
  - 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
<b>University Core</b>		
<i>Competency Requirements</i>		
Oral and Written Communication (OWC) Part A & B		
Quantitative Literacy (QL) Part A & B		
Foreign Language		
<i>Distribution Requirements</i>		
Arts		3
Cultural Diversity		3
Humanities		6
Natural Sciences		6
Social Sciences		6
<b>Biomedical Science Core</b>		
BIO SCI 150	Foundations of Biological Sciences I <sup>1</sup>	4
BIO SCI 202	Anatomy and Physiology I <sup>1</sup>	4
BIO SCI 203	Anatomy and Physiology II <sup>1</sup>	4
BIO SCI 325	Genetics <sup>1</sup>	4
BIO SCI 383	General Microbiology <sup>1</sup>	4
BMS 205	Introduction to Diagnostic Medicine	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 <sup>1</sup>	5
BMS 427	Clinical Immunology <sup>1</sup>	3
BMS 428	Clinical Immunology Laboratory <sup>1</sup>	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 <sup>1</sup>	5
CHEM 104	General Chemistry and Qualitative Analysis <sup>1</sup>	5

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

<sup>1</sup> Course counts towards a student's science GPA.

## Pre-Clinical Requirements

The junior year for students pursuing the Cytotechnology, or Medical Laboratory Science submajor consists primarily of pre-clinical courses, and the senior year is a 12-month professional training experience.

Medical Laboratory Science and Cytotechnology students must be prepared for full-time study (40 hours per week) that could also require additional study time at night and on weekends.

Code	Title	Credits
BMS 101	Introduction to Clinical Laboratory Sciences <sup>2</sup>	2
BMS 205	Introduction to Diagnostic Medicine <sup>2</sup>	3
BMS 420	Clinical Hematology	3
BMS 421	Introduction To Hematology Laboratory	1
BMS 431	Clinical Chemistry	3
BMS 432	Clinical Chemistry Laboratory Theory & Operations	1
BMS 521	Applied Clinical Hematology	2
BMS 522	Hemostasis	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 541	Urinalysis	1
BMS 542	Applied Clinical Chemistry	2
BMS 560	Molecular and Genetic Diagnostics	2
BMS 561	Molecular Diagnostics Laboratory	1

<sup>2</sup> BMS 101 and BMS 205 are highly recommended but not required.

## Medical Laboratory Submajor Requirements

Code	Title	Credits
BMS 523	Lectures in Advanced Clinical Hematology	1
BMS 529	Introduction to Immunohematology	3
BMS 524	Advanced Clinical Hematology Practicum	3
BMS 530	Immunohematology and Blood Banking Laboratory	1
BMS 531	Advanced Lectures in the Clinical Laboratory Sciences	1

BMS 532	Advanced Clinical Immunohematology and Immunology	3
BMS 538	Advanced Clinical Microbiology Practicum	3
BMS 544	Advanced Clinical Chemistry Practicum	3
BMS 547	Clinical Laboratory Diagnosis	5
BMS 548	Clinical Laboratory Practice	5
BMS 549	Professional Development in Clinical Laboratory Sciences	3
BMS 555	Toxicology and Therapeutic Drug Monitoring	1

## Biomedical Sciences Requirements

### Year 1

Semester 1		Credits
BIO SCI 202	Anatomy and Physiology I	4
BMS 101	Introduction to Clinical Laboratory Sciences <sup>1</sup>	2
BMS 205	Introduction to Diagnostic Medicine <sup>1</sup>	3
CHEM 102	General Chemistry	5
GER Elective: Arts		3
Credits		17

### Semester 2

BIO SCI 203	Anatomy and Physiology II	4
CHEM 104	General Chemistry and Qualitative Analysis	5
HS 224	Computational Tools for Healthcare Professionals	3
GER Elective: Humanities		3
Credits		15

### Year 2

#### Semester 1

BIO SCI 150	Foundations of Biological Sciences I	4
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
ENGLISH 207	Health Science Writing (OWCB) <sup>2</sup>	3
Credits		15

#### Semester 2

BIO SCI 325	Genetics	4
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)	3
GER Elective: Social Science		3
GER Elective: Social Science		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
GER Elective: Humanities		3
Credits		14

#### Semester 2

BMS 420	Clinical Hematology	3
BMS 421	Introduction To Hematology Laboratory	1
BMS 431	Clinical Chemistry	3
BMS 432	Clinical Chemistry Laboratory Theory & Operations	1
BMS 534	Medical Microbiology	3

BMS 535	Medical Microbiology Laboratory	2
BMS 560	Molecular and Genetic Diagnostics	2
BMS 561	Molecular Diagnostics Laboratory	1
Credits		16
<b>Year 4</b>		
<b>Summer</b>		
BMS 521	Applied Clinical Hematology	2
BMS 522	Hemostasis	1
BMS 536	Applied Clinical Microbiology	2
BMS 537	Medical Parasitology and Mycology	2
BMS 541	Urinalysis	1
BMS 542	Applied Clinical Chemistry	2
Credits		10
Total Credits		102

<sup>1</sup> BMS 101 and BMS 205 are highly recommended but not required.

<sup>2</sup> ENGLISH 207 is required for students without any credit prior to Fall 2013.

## Medical Laboratory Submajor Requirements

Year 4		Credits
<b>Semester 1</b>		
BMS 523	Lectures in Advanced Clinical Hematology	1
BMS 529	Introduction to Immunohematology	3
BMS 530	Immunohematology and Blood Banking Laboratory	1
BMS 547	Clinical Laboratory Diagnosis	5
BMS 548	Clinical Laboratory Practice	5
BMS 555	Toxicology and Therapeutic Drug Monitoring	1
Credits		16
<b>Semester 2</b>		
BMS 524	Advanced Clinical Hematology Practicum	3
BMS 531	Advanced Lectures in the Clinical Laboratory Sciences	1
BMS 532	Advanced Clinical Immunohematology and Immunology	3
BMS 538	Advanced Clinical Microbiology Practicum	3
BMS 544	Advanced Clinical Chemistry Practicum	3
BMS 549	Professional Development in Clinical Laboratory Sciences	3
Credits		16
Total Credits		32

## 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 following advancement to a Health Sciences major.

## Honors in the College of Health Sciences

### Dean's Honor List

GPA of 3.750 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 (<http://catalog.uwm.edu/opportunities-resources/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.