BIOMEDICAL SCIENCES (BMS)

BMS 101 Introduction to Clinical Laboratory Sciences
2 cr. Undergraduate.
Lecture and laboratory instruction to introduce the student to the
profession of clinical laboratory sciences with special emphasis in
medical technology and cytotechnology.
Prerequisites: none.
Current Offerings: [link]

BMS 201 Sexually Transmitted Diseases and AIDS
3 cr. Undergraduate.
Introductory course examining epidemiology, physiology, and
microbiology of sexually transmitted infectious diseases. Information on
reproductive physiology, pathophysiology and clinical disease, prevention
and current treatment strategies.
Prerequisites: none.
General Education Requirements: NS
Current Offerings: [link]

BMS 204 Plagues, Pandemics, and Epidemics
3 cr. Undergraduate.
Basic principles and concepts of infectious diseases recognized to be of
major worldwide importance in terms of mortality and morbidity.
Prerequisites: none.
Current Offerings: [link]

BMS 205 Introduction to Diagnostic Medicine
3 cr. Undergraduate.
This course will provide a framework for understanding medical
diagnostic tests in terms of procedures, risks, interpretation of results
and relevant science behind the tests.
Prerequisites: none.
General Education Requirements: NS
Last Taught: Fall 2018, Fall 2017, Fall 2016, Fall 2015.
Current Offerings: [link]

BMS 205X Introduction to Diagnostic Medicine
3 cr. Undergraduate.
This course will provide a framework for understanding medical
diagnostic tests in terms of procedures, risks, interpretation of results
and relevant science behind the tests.
Prerequisites: none.
General Education Requirements: NS
Last Taught: Fall 2018, Fall 2017, Fall 2016, Fall 2015.
Current Offerings: [link]

BMS 232 Introduction to Nutrition
3 cr. Undergraduate.
Fundamentals of human nutrition, functions and requirements of
nutrients, nutritional needs throughout the life cycle.
Prerequisites: none.
Course Rules: Not open for cr to students with cr in Hlthsci 238 or
BMS 332.
General Education Requirements: NS
Current Offerings: [link]

BMS 232X Introduction to Nutrition
3 cr. Undergraduate.
Fundamentals of human nutrition, functions and requirements of
nutrients, nutritional needs throughout the life cycle.
Prerequisites: none.
Course Rules: Not open for cr to students with cr in Hlthsci 238 or
BMS 332.
General Education Requirements: NS
Current Offerings: [link]

BMS 245 Introduction to Complementary and Integrative Health
3 cr. Undergraduate.
Introduction to the philosophy, evidence and applications of diverse
medical and health care systems, practices, and products that are not
generally considered part of conventional western biomedicine.
Prerequisites: none.
General Education Requirements: SS
Current Offerings: [link]

BMS 245X Client Diversity in Health Sciences: An Interdisciplinary
Perspective
3 cr. Undergraduate.
Interdisciplinary instruction on effective service delivery in the health
sciences to culturally diverse individuals and families. Emphasis on the
complexity of an individual's cultural identity.
Prerequisites: sophomore standing or consent of instructor.
Course Rules: BMS/ComSDis/HCA/Kin/OccThpy/TherRec 245 are jointly
offered; they count as repeats of one another.
General Education Requirements: SS, CD
Current Offerings: [link]

BMS 260 Introduction to Complementary and Integrative Health
Approaches
3 cr. Undergraduate.
Introduction to the philosophy, evidence and applications of diverse
medical and health care systems, practices, and products that are not
generally considered part of conventional western biomedicine.
Prerequisites: none.
General Education Requirements: SS
Current Offerings: [link]

BMS 260X Introduction to Complementary and Integrative Health
Approaches
3 cr. Undergraduate.
Introduction to the philosophy, evidence and applications of diverse
medical and health care systems, practices, and products that are not
generally considered part of conventional western biomedicine.
Prerequisites: none.
General Education Requirements: SS
Current Offerings: [link]
BMS 281 Dead Men Do Tell Tales: An Introduction to Forensic Science
3 cr. Undergraduate.
A multidisciplinary view of how forensic scientists contribute to the many
ways that physical evidence is collected, analyzed, and evaluated.
Prerequisites: none.
Course Rules: Jointly-offered with & counts as repeat of Anthro/Chem/ Crm Jst 281.
Last Taught: Fall 2018, Fall 2015, Fall 2014, Fall 2013.
Current Offerings: http://uwm.edu/schedule

BMS 285 Medicolegal Death Investigation
3 cr. Undergraduate.
Lectures on the fundamentals of death investigation as outlined by
national guidelines for death investigators.
Prerequisites: none.
Last Taught: Fall 2018, Fall 2017, Fall 2016, Fall 2015.
Current Offerings: http://uwm.edu/schedule

BMS 290 Topics in Health Sciences:
1-3 cr. Undergraduate.
Topics of current interest in the field of health sciences.
Prerequisites: specified in sem schedule whenever req’d for a topic.
Course Rules: May be repeated with change in topic.
Current Offerings: http://uwm.edu/schedule

BMS 297 Study Abroad:
1-12 cr. Undergraduate.
Designed to enroll students in UWM sponsored program before course
work level, content and credits are determined and/or in specially
prepared program course work.
Prerequisites: acceptance to Study Abroad Prog.
Course Rules: May be retaken w/chg in topic.
Current Offerings: http://uwm.edu/schedule

BMS 301 Human Pathophysiology: Fundamentals
1 cr. Undergraduate.
Pathological mechanisms underlying disease states, diagnosis and
management/treatment of these disorders; topics cover cell injury, inflammation,
immunopathology, repair, regeneration and fibrosis.
Prerequisites: Bio Sci 203(P) or consent of instructor.
Current Offerings: http://uwm.edu/schedule

BMS 301X Human Pathophysiology: Fundamentals
1 cr. Undergraduate.
Pathological mechanisms underlying disease states, diagnosis and
treatment of these disorders; topics cover cell injury, inflammation,
immunopathology, repair, regeneration and fibrosis.
Prerequisites: Bio Sci 203(P) or consent of instructor.
Current Offerings: http://uwm.edu/schedule

BMS 302 Human Pathophysiology: Organ Systems I
1 cr. Undergraduate.
Pathological mechanisms underlying disease states, diagnosis and
management/treatment of these disorders; topics cover developmental and genetic
disorders, neoplasms, nervous system, bones, joints, skeletal muscle.
Prerequisites: BMS 301(C) or cons instr.
Current Offerings: http://uwm.edu/schedule

BMS 302X Human Pathophysiology: Organ Systems I
1 cr. Undergraduate.
Pathological mechanisms underlying disease states, diagnosis and
treatment of these disorders; topics cover developmental and genetic
disorders, neoplasms, nervous system, bones, joints, skeletal muscle.
Prerequisites: BMS 301(C) or cons instr.
Current Offerings: http://uwm.edu/schedule

BMS 303 Human Pathophysiology: Organ Systems II
1 cr. Undergraduate.
Pathological mechanisms underlying disease states, diagnosis and
treatment of these disorders; topics cover cardiovascular, respiratory,
and lymphoid systems, diabetes.
Prerequisites: BMS 301(C) or consent of instructor.
Current Offerings: http://uwm.edu/schedule

BMS 303X Human Pathophysiology: Organ Systems II
1 cr. Undergraduate.
Pathological mechanisms underlying disease states, diagnosis and
treatment of these disorders; topics cover cardiovascular, respiratory,
and lymphoid systems, diabetes.
Prerequisites: BMS 301(C) or consent of instructor.
Current Offerings: http://uwm.edu/schedule

BMS 304 Human Pathophysiology: Organ Systems III
1 cr. Undergraduate.
Pathological mechanisms underlying disease states, diagnosis and
management/treatment of these disorders; topics cover gastrointestinal tract,
pancreas, kidney, liver/biliary system, female and male reproductive
systems.
Prerequisites: BMS 301(C) or consent of instructor.
Current Offerings: http://uwm.edu/schedule

BMS 304X Human Pathophysiology: Organ Systems III
1 cr. Undergraduate.
Pathological mechanisms underlying disease states, diagnosis and
management/treatment of these disorders; topics cover gastrointestinal tract,
pancreas, kidney, liver/biliary system, female and male reproductive
systems.
Prerequisites: BMS 301(C) or consent of instructor.
Current Offerings: http://uwm.edu/schedule

BMS 305 Human Pathophysiology: Organ Systems IV
1 cr. Undergraduate.
Pathological mechanisms underlying disease states, diagnosis/treatment
of these disorders. Topics: endocrine system, infectious and parasitic
diseases, environmental and nutritional factors related to morbidity/ mortality.
Prerequisites: BMS 301(C) or consent of instructor.
Current Offerings: http://uwm.edu/schedule
BMS 305X Human Pathophysiology: Organ Systems IV  
1 cr. Undergraduate.  
Pathological mechanisms underlying disease states, diagnosis/treatment of these disorders. Topics: endocrine system, infectious and parasitic diseases, environmental and nutritional factors related to morbidity/mortality. 
Prerequisites: BMS 301(C) or consent of instructor.  
Current Offerings: http://uwm.edu/schedule

BMS 314X Human Pathophysiology I  
3 cr. Undergraduate.  
Study of human pathological processes. Emphasis is on interrelationships among organ systems and deviations from homeostasis. 
Prerequisites: Bio Sci 202(P) & 203(P).  
Course Rules: Counts as repeat of BMS 301 or BMS 302 or BMS 303.  
Current Offerings: http://uwm.edu/schedule

BMS 315X Human Pathophysiology II  
2 cr. Undergraduate.  
Study of human pathological processes. Emphasis is on interrelationships among organ systems and deviations from homeostasis.  
Prerequisites: Bio Sci 202(P) & 203(P).  
Course Rules: Counts as repeat of BMS 304 or BMS 305.  
Current Offerings: http://uwm.edu/schedule

BMS 332 Clinical Nutrition  
2 cr. Undergraduate.  
Nutritional needs throughout life; relationships between food habits and health problems; evaluating dietary information for deficiencies and imbalances.  
Prerequisites: Chem 103(P), Bio Sci 202(P) & 203(P), or BMS 232(P) or HlthSci 232(P).  
Current Offerings: http://uwm.edu/schedule

BMS 335 Echocardiography I  
3 cr. Undergraduate.  
Introduction to normal cardiovascular anatomy, the normal ultrasound exam and protocol for an echocardiogram.  
Prerequisites: jr st in BioMed Sci prog or cons instr.  
Last Taught: Fall 2009, Fall 2008, Fall 2007.  
Current Offerings: http://uwm.edu/schedule

BMS 403 Sonographic Physics I  
1 cr. Undergraduate.  
Study of the basic principles of acoustic transmission, reflection in tissues and transducer design in pulse echo systems.  
Prerequisites: jr st in BioMed Sci prog or cons instr.  
Current Offerings: http://uwm.edu/schedule

BMS 404 Sonographic Physics II  
1 cr. Undergraduate.  
Study of the basic principles of near zone, far zone, beam profiles, beam focusing, transducer arrays.  
Prerequisites: jr st in BioMed Sci prog or cons instr.  
Current Offerings: http://uwm.edu/schedule

BMS 405 Sonographic Physics III  
1 cr. Undergraduate.  
Study of the basic principles of Doppler, acoustical exposure measurements, QA, bioeffects and the ALARA principle.  
Prerequisites: jr st in BioMed Sci prog or cons instr.  
Current Offerings: http://uwm.edu/schedule

BMS 406 Diagnostic Medical Sonography (DMS) Abdomen I  
4 cr. Undergraduate.  
Study of normal and abnormal sonograms of the peritoneal space, prevertebral vessels, liver, biliary, pancreas and kidneys will be discussed.  
Prerequisites: jr st in BioMed Sci prog or cons instr.  
Current Offerings: http://uwm.edu/schedule

BMS 407 Diagnostic Medical Sonography (DMS) Abdomen II  
4 cr. Undergraduate.  
Study of normal and abnormal sonograms of the spleen, transplant imaging, GI imaging and dedicated pediatric imaging will be discussed.  
Prerequisites: jr st in BioMed Sci prog or cons instr.  
Current Offerings: http://uwm.edu/schedule

BMS 408 Vascular Sonography: CV & PV-Arterial  
5 cr. Undergraduate.  
Study of cerebrovascular anatomy, normal and abnormal, and ultrasound imaging, upper arterial ultrasound exams, anatomy and pathology and lower extremity arterial ultrasound.  
Prerequisites: jr st in BioMed Sci prog or cons instr.  
Current Offerings: http://uwm.edu/schedule

BMS 409 Vascular Technology: Advanced  
4 cr. Undergraduate.  
Study of peripheral vascular direct and indirect arterial and venous, normal and abnormal and abdominal Doppler.  
Prerequisites: jr st in BioMed Sci prog or cons instr.  
Current Offerings: http://uwm.edu/schedule

BMS 410 Sonography Clinical Internship I  
5 cr. Undergraduate.  
Students will successfully complete sonography clinical competency examinations, under the supervision of the clinical instructors.  
Prerequisites: jr st in BioMed Sci prog or cons instr.  
Last Taught: Fall 2014, Fall 2013.  
Current Offerings: http://uwm.edu/schedule

BMS 411 Sonography Clinical Internship II  
5 cr. Undergraduate.  
Students will successfully complete sonography clinical competency examinations, under the supervision of the clinical instructors.  
Prerequisites: jr st in BioMed Sci prog or cons instr.  
Last Taught: Spring 2015, Spring 2014.  
Current Offerings: http://uwm.edu/schedule

BMS 420 Clinical Hematology  
3 cr. Undergraduate/Graduate.  
Lectures in the production, regulation, function, and cytomorphology of normal hematopoietic elements. Introduction to hemostasis theory.  
Prerequisites: jr st or cons instr.  
Current Offerings: http://uwm.edu/schedule
BMS 421 Introduction To Hematology Laboratory
1 cr. Undergraduate.
Clinical laboratory experiences in basic hematology techniques and instrumentation to evaluate hematopoietic elements. 3 hr lab.
Prerequisites: jr st in BioMed Sci prog or cons instr; BMS 420(C).
Current Offerings: http://uwm.edu/schedule

BMS 427 Clinical Immunology
3 cr. Undergraduate/Graduate.
Fundamentals of Clinical Immunology, including cellular, humoral and molecular aspects. Correlation of laboratory test results with clinical disease states.
Prerequisites: jr st.
Last Taught: Fall 2018, Fall 2017.
Current Offerings: http://uwm.edu/schedule

BMS 427G Clinical Immunology
3 cr. Undergraduate/Graduate.
Fundamentals of Clinical Immunology, including cellular, humoral and molecular aspects. Correlation of laboratory test results with clinical disease states.
Prerequisites: jr st.
Last Taught: Fall 2018, Fall 2017.
Current Offerings: http://uwm.edu/schedule

BMS 428 Clinical Immunology Laboratory
1 cr. Undergraduate.
Laboratory experiments in clinical immunology and theories of testing concepts. 3 hr lab.
Prerequisites: jr st in BioMed Sci prog or cons instr; BMS 427(C).
Last Taught: Fall 2018, Fall 2017, Fall 2016, Fall 2015.
Current Offerings: http://uwm.edu/schedule

BMS 431 Clinical Chemistry
3 cr. Undergraduate/Graduate.
Correlation of clinical chemistry with the pathophysiology of human disease.
Prerequisites: jr st; Chem 501(P) or cons instr; or grad st.
Current Offerings: http://uwm.edu/schedule

BMS 432 Clinical Chemistry Laboratory Theory & Operations
1 cr. Undergraduate.
Theory and application of Clinical Chemistry laboratory principles. Focus on laboratory principles, quality assurance, theory of instrumentation, and laboratory problem solving.
Prerequisites: jr st in BioMed Sci prog or cons instr; Chem 501(P); BMS 431(C).
Current Offerings: http://uwm.edu/schedule

BMS 433 Teamwork in the Health Professions
3 cr. Undergraduate.
Develop and demonstrate competency in best practices for professionalism, roles, responsibilities, teamwork, communication, ethics, and collaboration to improve the quality and safety of patient care.
Prerequisites: sr st or cons instr.
Current Offerings: http://uwm.edu/schedule

BMS 433X Teamwork in the Health Professions
3 cr. Undergraduate.
Develop and demonstrate competency in best practices for professionalism, roles, responsibilities, teamwork, communication, ethics, and collaboration to improve the quality and safety of patient care.
Prerequisites: sr st or cons instr.
Current Offerings: http://uwm.edu/schedule

BMS 434 Professional Development in the Health Sciences
3 cr. Undergraduate.
Knowledge and understanding about professional volunteerism, leadership, legislative, and advocacy efforts, certification and licensure, career pathways, growth, and advancement.
Prerequisites: sr st or cons instr.
Current Offerings: http://uwm.edu/schedule

BMS 434X Professional Development in the Health Sciences
3 cr. Undergraduate.
Knowledge and understanding about professional volunteerism, leadership, legislative, and advocacy efforts, certification and licensure, career pathways, growth, and advancement.
Prerequisites: sr st or cons instr.
Current Offerings: http://uwm.edu/schedule

BMS 459 Introduction to 3D/4D Ultrasound
3 cr. Undergraduate.
Comparison of normal and pathological anatomy cases utilizing two, three and four dimensional sonography techniques.
Prerequisites: junior standing in BioMedical Science program or consent of instructor.
Last Taught: Fall 2013, Spring 2010, Spring 2009.
Current Offerings: http://uwm.edu/schedule

BMS 459X Introduction to 3D/4D Ultrasound
3 cr. Undergraduate.
Comparison of normal and pathological anatomy cases utilizing two, three and four dimensional sonography techniques.
Prerequisites: junior standing in BioMedical Science program or consent of instructor.
Last Taught: Fall 2013, Spring 2010, Spring 2009.
Current Offerings: http://uwm.edu/schedule

BMS 462 Seminar in Ultrasound Research
3 cr. Undergraduate.
Student is assigned to a research project and mentor in didactic one-on-one sessions and performing clinical studies.
Prerequisites: jr st in BioMed Sci prog or cons instr.
Last Taught: Spring 2009.
Current Offerings: http://uwm.edu/schedule

BMS 472 Radiographic Anatomy and Physiology IV
3 cr. Undergraduate.
Structure and physiology of the human body as they relate to radiography of the remaining systems. The physiochemical process.
Prerequisites: sr st in BioMed Sci prog or cons instr.
Last Taught: Fall 2012, Fall 2011, Fall 2010, Fall 2009.
Current Offerings: http://uwm.edu/schedule
BMS 476 Radiographic Exposure IV
3 cr. Undergraduate.
Digital imaging concepts and conversion problems, qualities of contrast, density, detail, and distortion.
Prerequisites: sr st in BioMed Sci prog or cons instr.
Current Offerings: http://uwm.edu/schedule

BMS 481 Criminalistics
3 cr. Undergraduate.
Instruction on collection, preservation, and analysis of physical evidence from crime scenes. Instruction on the rules of evidence and expert testimony.
Prerequisites: jr st; admis to Forensic Sci cert prog; Anthro/Chem/BMS/ Crm Jst 281(P); Crm Jst 480 (P).
Course Rules: Anthro 481, Chem 481, BMS 481, & Crm Jst 481 are jointly offered; they count as repeats of one another.
Current Offerings: http://uwm.edu/schedule

BMS 497 Study Abroad:
1-12 cr. Undergraduate/Graduate.
Designed to enroll students in UWM sponsored program before course work level, content, and credits are determined and/or in specially prepared program course work.
Prerequisites: acceptance to Study Abroad Prog.
Course Rules: May be retaken w/chg in topic.
Current Offerings: http://uwm.edu/schedule

BMS 501 Introduction to Cytotechnology
1 cr. Undergraduate.
Fieldwork to include lecture and laboratory instruction introducing the profession of Cytotechnology with emphasis on the role, responsibility, and ethics of the profession.
Prerequisites: sr st in BioMed Sci prog & cons prog dir.
Last Taught: Fall 2013, Fall 2012, Fall 2011, Fall 2010.
Current Offerings: http://uwm.edu/schedule

BMS 513 Advanced Clinical Immunohematology
3 cr. Undergraduate.
Practical experience in the clinical laboratory dealing with both normal and abnormal hematology and body fluids.
Prerequisites: sr st in BioMed Sci prog or cons prog dir.
Current Offerings: http://uwm.edu/schedule

BMS 524 Advanced Clinical Hematology Practicum
3 cr. Undergraduate.
Practical experience in the clinical laboratory dealing with both normal and abnormal hematology and body fluids.
Prerequisites: sr st in BioMed Sci prog or cons prog dir.
Current Offerings: http://uwm.edu/schedule

BMS 529 Introduction to Immunohematology
3 cr. Undergraduate.
An introduction to the fundamentals of immunohematology and clinical blood banking.
Prerequisites: BMS 427(P) or cons instr.
Last Taught: Fall 2018, Fall 2017, Fall 2016, Fall 2015.
Current Offerings: http://uwm.edu/schedule

BMS 530 Immunohematology and Blood Banking Laboratory
1 cr. Undergraduate.
Fundamental practial instruction in basic blood banking techniques.
Prerequisites: BMS 529(C) or cons instr.
Last Taught: Fall 2018, Fall 2017, Fall 2016, Fall 2015.
Current Offerings: http://uwm.edu/schedule

BMS 531 Advanced Lectures in the Clinical Laboratory Sciences
1 cr. Undergraduate.
Clinical applications and relationships within the various disciplines of clinical laboratory sciences including discussion of current topics of interest in diagnostic medicine.
Prerequisites: sr st in BioMed Sci prog or cons instr.
Current Offerings: http://uwm.edu/schedule

BMS 534 Medical Microbiology
3 cr. Undergraduate.
Advanced comprehensive study of microorganisms that influence human health and disease. Emphasis on identification/diagnosis and microbial attributes and mechanisms that facilitate infectious disease.
Prerequisites: jr st & Bio Sci 383(303)(P); or grad st; or cons instr.
Current Offerings: http://uwm.edu/schedule

BMS 535 Medical Microbiology Laboratory
2 cr. Undergraduate/Graduate.
Formal systematic laboratory study of microorganisms important in human health and disease. Emphasis on current methods of detection, identification and treatment. 4 hr lab.
Prerequisites: jr st & Bio Sci 383(303)(P), or cons instr; BMS 534(C).
Current Offerings: http://uwm.edu/schedule
**BMS 536 Applied Clinical Microbiology**
2 cr. Undergraduate.
Lectures and laboratory dealing with the systematic study of bacteria of medical importance to humans.
Prerequisites: sr st in BioMed Sci prog or cons prog dir.
Current Offerings: http://uwm.edu/schedule

**BMS 537 Medical Parasitology and Mycology**
2 cr. Undergraduate/Graduate.
Lectures and laboratory dealings with the medically significant parasitic and mycotic agents of human disease.
Prerequisites: sr st in BioMed Sci prog; or grad st; or cons instr.
Current Offerings: http://uwm.edu/schedule

**BMS 538 Advanced Clinical Microbiology Practicum**
3 cr. Undergraduate.
Clinical instruction in techniques utilized for the diagnosis of infectious disease, including special culture techniques.
Prerequisites: sr st in BioMed Sci prog or cons prog dir.
Current Offerings: http://uwm.edu/schedule

**BMS 539 Public Health Microbiology**
2 cr. Undergraduate/Graduate.
The role of microbiological analysis in public health and the current techniques for detecting, identifying, and enumerating pathogenic microorganisms.
Prerequisites: jr st & Bio Sci 383(303)(P), or grad st; or cons instr.
Last Taught: Fall 2018, Fall 2017.
Current Offerings: http://uwm.edu/schedule

**BMS 540 Public Health Microbiology Lab**
2 cr. Undergraduate/Graduate.
Current laboratory techniques for detecting, identifying, and enumerating pathogenic microorganisms.
Prerequisites: jr st, or cons instr
Last Taught: Fall 2018, Fall 2017.
Current Offerings: http://uwm.edu/schedule

**BMS 541 Urinalysis**
1 cr. Undergraduate.
Lecture and laboratory experience in clinical analysis of urine.
Prerequisites: sr st in BioMed Sci prog or cons instr.
Current Offerings: http://uwm.edu/schedule

**BMS 542 Applied Clinical Chemistry**
2 cr. Undergraduate.
Systematic instruction in the laboratory determination of substances of principal interest to the diagnosis of human disease.
Prerequisites: sr st in BioMed Sci prog or cons instr.
Current Offerings: http://uwm.edu/schedule

**BMS 543 Advanced Clinical Chemistry Practicum**
3 cr. Undergraduate.
Experience in a hospital laboratory dealing with routine and specialized biochemical procedures and all phases of instrumentation currently used in this field.
Prerequisites: sr st in BioMed Sci prog or cons prog dir.
Current Offerings: http://uwm.edu/schedule

**BMS 544 Human Histology**
3 cr. Undergraduate/Graduate.
A detailed study of the structure and function of human tissues.
Prerequisites: jr st.
Current Offerings: http://uwm.edu/schedule

**BMS 545 Professional Development in Clinical Laboratory Sciences**
3 cr. Undergraduate.
Discussion and participation in professional development activities. Topics include: laboratory management, laboratory information systems, professional conduct, ethics, certification, job placement, and educational methodologies.
Prerequisites: senior standing in BioMedical Science program or consent of instructor.
Current Offerings: http://uwm.edu/schedule
BMS 549X Professional Development in Clinical Laboratory Sciences
3 cr. Undergraduate.
Discussion and participation in professional development activities.
Topics include: laboratory management, laboratory information systems, professional conduct, ethics, certification, job placement, and educational methodologies.
Prerequisites: senior standing in BioMedical Science program or consent of instructor.
Current Offerings: http://uwm.edu/schedule

BMS 552 Advanced Nutrition
2 cr. Undergraduate/Graduate.
Nutrient utilization and human metabolism, nutritional influences in anthropology, epidemiology and international development issues.
Prerequisites: jr st, BMS 232(P) or Bio Sci 501(P).
Current Offerings: http://uwm.edu/schedule

BMS 555 Toxicology and Therapeutic Drug Monitoring
1 cr. Undergraduate/Graduate.
Survey of the pharmacology and analytical methods for identification and quantitation of therapeutical and toxic substances.
Prerequisites: jr st, & Chem 341(P) or 345(P); or cons instr.
Last Taught: Fall 2018, Fall 2017.
Current Offerings: http://uwm.edu/schedule

BMS 555G Toxicology and Therapeutic Drug Monitoring
1 cr. Undergraduate/Graduate.
Survey of the pharmacology and analytical methods for identification and quantitation of therapeutical and toxic substances.
Prerequisites: jr st, & Chem 341(P) or 345(P); or cons instr.
Last Taught: Fall 2018, Fall 2017.
Current Offerings: http://uwm.edu/schedule

BMS 556 Molecular and Genetic Diagnostics
2 cr. Undergraduate/Graduate.
Introduction to principles and applications of DNA technology in the clinical laboratory.
Prerequisites:
Current Offerings: http://uwm.edu/schedule

BMS 561 Molecular Diagnostics Laboratory
1 cr. Undergraduate/Graduate.
Clinical laboratory experiences in molecular diagnostic techniques and instrumentation.
Prerequisites: jr st & BMS 560(C); or grad st & BMS 705(P); or cons instr.
Current Offerings: http://uwm.edu/schedule

BMS 575 Cytology of the Female Genital Tract - I
4 cr. Undergraduate.
Fieldwork to include lectures discussing the normal and abnormal cytology of the female genital tract.
Prerequisites: sr st in BioMed Sci prog & cons prog dir.
Last Taught: Fall 2013, Fall 2012, Fall 2011, Fall 2010.
Current Offerings: http://uwm.edu/schedule

BMS 576 Cytology of the Female Genital Tract - II
4 cr. Undergraduate.
Fieldwork to include laboratory experience dealing with the study of the normal and abnormal cytology of the female genital tract.
Prerequisites: sr st in BioMed Sci prog & cons prog dir.
Last Taught: Fall 2013, Fall 2012, Fall 2011, Fall 2010.
Current Offerings: http://uwm.edu/schedule

BMS 577 Cytology of the Respiratory Tract
3 cr. Undergraduate.
Lectures and laboratory experience in the study of the normal and abnormal cytology of the respiratory tract.
Prerequisites: sr st in BioMed Sci prog & cons prog dir.
Last Taught: Fall 2013, Fall 2012, Fall 2011, Fall 2010.
Current Offerings: http://uwm.edu/schedule

BMS 578 Cytology of the Gastrointestinal and the Genito-Urinary Tract
2 cr. Undergraduate.
Fieldwork to include lecture and laboratory experience dealing with the normal and abnormal cytology of the G.I. and G.U. tracts.
Prerequisites: sr st in BioMed Sci prog & cons prog dir.
Current Offerings: http://uwm.edu/schedule

BMS 579 Cytology of Effusions and the Central Nervous System
3 cr. Undergraduate.
Fieldwork to include lecture and laboratory experiences in the study of various body fluids in health and disease.
Prerequisites: sr st in BioMed Sci & cons prog dir.
Current Offerings: http://uwm.edu/schedule

BMS 580 Aspiration Cytology
4 cr. Undergraduate.
Fieldwork to include lecture and laboratory experience dealing with aspiration cytology.
Prerequisites: sr st in BioMed Sci prog & cons prog dir.
Current Offerings: http://uwm.edu/schedule

BMS 581 Special Procedures in Cytology
1 cr. Undergraduate.
Fieldwork to include lecture and laboratory experiences dealing with special procedures used in cytological diagnosis.
Prerequisites: sr st in BioMed Sci prog & cons prog dir.
Current Offerings: http://uwm.edu/schedule

BMS 582 Cytology of the Breast
1 cr. Undergraduate.
Fieldwork to include lecture and laboratory experiences dealing with the normal and abnormal cytology of the breast.
Prerequisites: sr st in BioMed Sci prog & cons prog dir.
Current Offerings: http://uwm.edu/schedule
BMS 583 Cytology Preparation Techniques
1 cr. Undergraduate.
Fieldwork to include laboratory preparation of gynecologic and non-gynecologic cytology specimens using several different instrument methodologies.
Prerequisites: sr st in BioMed Sci prog & cons prog dir.
Current Offerings: http://uwm.edu/schedule

BMS 585 Internship in Forensic Toxicology
1-3 cr. Undergraduate.
Practical experience in death investigation under the supervision of a toxicologist.
Prerequisites: jr st; admis to Forensic Sci cert prog; Anthro/Chem/BMS/ Crm Jst 281(P) & 285(P); Chem 221(P) or 223(P); Crm Jst 480(P); Hepatitis B vaccine series or waiver.
Course Rules: Anthro 585, Chem 585, BMS 585, & Crm Jst 585 are jointly offered; they count as repeats of one another.
Last Taught: Spring 2002.
Current Offerings: http://uwm.edu/schedule

BMS 586 Cytology Lab Operations and Quality Control
1 cr. Undergraduate.
Basic administrative functions and quality control procedures utilized in the cytology laboratory.
Prerequisites: sr st in BioMed Sci prog & cons prog dir.
Current Offerings: http://uwm.edu/schedule

BMS 587 Research Methods in Cytology
1 cr. Undergraduate.
Research methods in cytology through journal club, literature reviews, case studies, and library research.
Prerequisites: sr st in BioMed Sci prog & cons prog dir.
Current Offerings: http://uwm.edu/schedule

BMS 588 Diagnostic Microscopy in Cytology
5 cr. Undergraduate.
Fieldwork in a functioning cytotechnology laboratory.
Prerequisites: sr st in BioMed Sci prog & cons prog dir.
Current Offerings: http://uwm.edu/schedule

BMS 589 Internship in Death Investigation
1-3 cr. Undergraduate.
Practical experience in death investigation under the supervision of a death investigator and forensic pathologist.
Prerequisites: jr st; admis to Forensic Sci cert prog; Anthro/Chem/BMS/ Crm Jst 281(P); Crm Jst 480(P); BMS 620(R); Hepatitis B vaccine series or waiver.
Course Rules: Anthro 589, Chem 589, BMS 589 & Crm Jst 589 are jointly offered; they count as repeats of one another.
Last Taught: Fall 2017, Spring 2002.
Current Offerings: http://uwm.edu/schedule

BMS 590 Topics in Clinical Laboratory Sciences:
1-5 cr. Undergraduate/Graduate.
Topics of current interest in the field of clinical laboratory sciences. The major theme for each semester offering will be posted.
Prerequisites: junior standing; consent of instructor for graduate credit.
Course Rules: May be retaken with change in topic to max of 9 cr for grad students.
Current Offerings: http://uwm.edu/schedule

BMS 594 Internship in Forensic Science
1-3 cr. Undergraduate.
On-site shadowing of evidence analyst at State Crime Laboratory.
Prerequisites: jr st; admis to Forensic Sci cert prog; Anthro/Chem/BMS/ Crm Jst 281(P); Chem 221(P) or 223(P); Crm Jst 480(P); Hepatitis B vaccine series or waiver.
Course Rules: Anthro 594, Chem 594, BMS(C L Sci) 594, & Crm Jst 594 are jointly offered; they count as repeats of one another.
Last Taught: Spring 2016.
Current Offerings: http://uwm.edu/schedule

BMS 599 Independent Study
1-3 cr. Undergraduate.
Individualized experience which enables the student to study current topics of interest to the clinical laboratory scientist. Level of credit assigned based on time required for completion.
Prerequisites: cons instr & prog dir.
Course Rules: May be retaken to 12 cr max.
Current Offerings: http://uwm.edu/schedule

BMS 600 Contrast Diagnostic Imaging
3 cr. Undergraduate/Graduate.
Use of contrast media in medical imaging diagnostic procedures.
Prerequisites: junior standing in BioMedical Science program; ARRT, ARDMS, or CCI Imaging Certification or completion of an Introductory Diagnostic Imaging course.
Last Taught: Spring 2014.
Current Offerings: http://uwm.edu/schedule

BMS 600X Contrast Diagnostic Imaging
3 cr. Undergraduate/Graduate.
Use of contrast media in medical imaging diagnostic procedures.
Prerequisites: junior standing in BioMedical Science program; ARRT, ARDMS, or CCI Imaging Certification or completion of an Introductory Diagnostic Imaging course.
Last Taught: Spring 2014.
Current Offerings: http://uwm.edu/schedule
BMS 601 Molecular Imaging for Diagnostic Imaging
3 cr. Undergraduate/Graduate.
Study of imaging principles utilized with molecular imaging. To include review of scientific publications for the use of molecular imaging to review various disease processes.
Prerequisites: junior standing in BioMedical Science program; ARRT, ARDMS, or CCI Imaging Certification or completion of an introductory Diagnostic Imaging course.
Last Taught: Spring 2014.
Current Offerings: http://uwm.edu/schedule

BMS 601X Molecular Imaging for Diagnostic Imaging
3 cr. Undergraduate/Graduate.
Study of imaging principles utilized with molecular imaging. To include review of scientific publications for the use of molecular imaging to review various disease processes.
Prerequisites: junior standing in BioMedical Science program; ARRT, ARDMS, or CCI Imaging Certification or completion of an introductory Diagnostic Imaging course.
Last Taught: Spring 2014.
Current Offerings: http://uwm.edu/schedule

BMS 610 Pharmacology
3 cr. Undergraduate/Graduate.
Lectures on pharmacokinetics, mechanisms of action, and physiological effects of toxic and therapeutic substances.
Prerequisites: jr st, Chem 501(P), or cons instr.
Last Taught: Fall 2018, Fall 2017.
Current Offerings: http://uwm.edu/schedule

BMS 610G Pharmacology
3 cr. Undergraduate/Graduate.
Lectures on pharmacokinetics, mechanisms of action, and physiological effects of toxic and therapeutic substances.
Prerequisites: jr st, Chem 501(P), or cons instr.
Last Taught: Fall 2018, Fall 2017.
Current Offerings: http://uwm.edu/schedule

BMS 615 Cellular and Molecular Toxicology
3 cr. Undergraduate/Graduate.
Cellular and molecular mechanisms of toxicant interactions with critical target organelles and molecules and subsequent downstream cellular responses.
Prerequisites: jr st, Chem 501(P) or cons instr; or grad st.
Current Offerings: http://uwm.edu/schedule

BMS 701 Human Pathophysiology I
3 cr. Graduate.
An advanced course in basic pathological mechanisms underlying production of human disease and effects on selected organ systems.
Prerequisites: grad st or cons instr.
Last Taught: Fall 2018, Fall 2017, Fall 2016, Fall 2015.
Current Offerings: http://uwm.edu/schedule

BMS 702 Human Pathophysiology II
3 cr. Graduate.
A continuation of 701 dealing with pathogenesis of the major diseases of human organ systems.
Prerequisites: grad st; BMS 701(P) or cons instr.
Current Offerings: http://uwm.edu/schedule

BMS 705 Molecular Pathology
3 cr. Graduate.
Principles, methods, and applications of nucleic acid-based technologies in pathology and laboratory medicine.
Prerequisites: grad st or cons instr.
Course Rules: Counts as repeat of BMS 590 with similar topic.
Last Taught: Fall 2017, Fall 2015, Fall 2013, Fall 2009.
Current Offerings: http://uwm.edu/schedule

BMS 710 Seminar in Biomedical Sciences
1 cr. Graduate.
Presentation of topics of current interest to the biomedical scientist.
Prerequisites: grad st or cons instr.
Course Rules: May be repeated to max of 9 cr.
Current Offerings: http://uwm.edu/schedule

BMS 717 Laboratory Technology-Theory and Practice
1 cr. Graduate.
Fundamental laboratory bench techniques common to the biological sciences to prepare students for independent research.
Prerequisites: grad st.
Last Taught: Fall 2018, Fall 2017, Fall 2016, Fall 2015.
Current Offerings: http://uwm.edu/schedule

BMS 718 Experimental Design, Research, and Epidemiologic Methods
1 cr. Graduate.
Fundamentals of laboratory, clinical and epidemiologic experimental design for beginning graduate students in the Health Sciences.
Prerequisites: grad st; Biostat or undergrad stats course or cons instr.
Current Offerings: http://uwm.edu/schedule

BMS 750 Infection and Immunity
3 cr. Graduate.
Immunobiology of the response to infectious disease agents of humans, with resulting clinical outcomes; mechanisms of immune evasion in establishing infection and causing disease.
Prerequisites: grad st; Lec courses in immunology and microbiology or cons instr.
Last Taught: Fall 2017, Fall 2016, Fall 2015, Fall 2014.
Current Offerings: http://uwm.edu/schedule

BMS 751 Immunopathology
3 cr. Graduate.
Examination of mechanisms by which abnormal, unwanted, or absent immune responses result in disease, including discussion of clinical presentation, diagnostic testing, and therapeutic intervention.
Prerequisites: grad st; BMS 750(P) or cons instr.
Last Taught: Spring 2017, Spring 2015.
Current Offerings: http://uwm.edu/schedule

BMS 756 Current Concepts in Cancer
3 cr. Graduate.
An overview of various forms of human cancer. Emphasis on cell markers and cytomorphology, etiology and kinetics.
Prerequisites: grad st or cons instr.
Last Taught: Fall 2018, Fall 2016, Fall 2014, Fall 1999.
Current Offerings: http://uwm.edu/schedule
BMS 765 Molecular Pathophysiology
3 cr. Graduate.
Advanced theoretical skills and an appreciation of the current scientific literature in basic and clinical physiologic chemistry.
Prerequisites: grad st or cons instr; basic college chemistry class suggested
Current Offerings: http://uwm.edu/schedule

BMS 766 Advanced Cardiovascular Hemodynamics
3 cr. Graduate.
Study of fundamental principles of fluid mechanics as applicable to physiologic and biological systems. Topics include Poiseuille flow, circulatory flow resistance.
Prerequisites: Admission to Biomed Sci MS program; ARRT, ARDMS, or CCI Imaging Certification or completion of introductory course in diagnostic imaging
Current Offerings: http://uwm.edu/schedule

BMS 767 Comparative Analysis of Diagnostic Imaging
3 cr. Graduate.
Study of imaging principles evoked in utilizing multiple imaging modalities (DMS, CT, MRI and radiographic imaging) of both the normal and pathology findings.
Prerequisites: Admission to Biomed Sci MS program; ARRT, ARDMS, or CCI Imaging Certification or completion of introductory course in diagnostic imaging
Current Offerings: http://uwm.edu/schedule

BMS 768 Diagnostic Imaging of Acquired Heart Disease
3 cr. Graduate.
In-depth study of how acquired heart disease is imaged in the adult patient.
Prerequisites: Admission to Biomed Sci MS program; ARRT, ARDMS, or CCI Imaging Certification or completion of introductory course in diagnostic imaging
Current Offerings: http://uwm.edu/schedule

BMS 769 Diagnostic Imaging for Management of Cardiovascular Disease
3 cr. Graduate.
In-depth study of imaging used to monitor surgical and medical management of patients with cardiovascular disease.
Prerequisites: Admission to Biomed Sci MS program; ARRT, ARDMS, or CCI Imaging Certification or completion of introductory course in diagnostic imaging
Current Offerings: http://uwm.edu/schedule

BMS 775 Mechanisms of Infectious Disease
2 cr. Graduate.
Molecular and cellular means by which microorganisms facilitate infection, withstand or evade immune response, induce damage to host, and ensure transmission to human populations.
Prerequisites: grad st; Ic & la course in medical microbiology
Course Rules: BMS 775 & PH 775 are jointly offered; they count as repeats of one another.
Current Offerings: http://uwm.edu/schedule

BMS 780 Emerging Infectious Diseases
3 cr. Graduate.
Detailed studies of those infectious diseases with both an emerging nature and a high impact on public health.
Prerequisites: grad st; background in microbiology, BMS 534 or BMS 539 or BioSci 383 (R)
Current Offerings: http://uwm.edu/schedule

BMS 782 Advanced Immunology
3 cr. Graduate.
Cellular basis of the immune response with emphasis on immunoregulation and clinical disease manifestations resulting from altered cellular immune function.
Prerequisites: grad st; course in immunology, or cons instr.
Current Offerings: http://uwm.edu/schedule

BMS 799 Research in Biomedical Sciences
1-8 cr. Graduate.
Preparation of a dissertation under the direction of the student's primary and secondary advisors.
Prerequisites: grad st; course in immunology; or cons instr.
Current Offerings: http://uwm.edu/schedule

BMS 901 Seminar on Philosophical Approaches to Science
3 cr. Graduate.
The nature and function of sciences, the logic of the scientific method as it relates to health, and implications of research and practices in health care.
Prerequisites: grad st.
Course Rules: BMS 901 & LibrlSt 901 are jointly offered; they count as repeats of one another.
Last Taught: Fall 2017, Fall 2016, Fall 2015, Fall 2013.
Current Offerings: http://uwm.edu/schedule

BMS 909 Guided Teaching Experience in Health Sciences
3 cr. Graduate.
This course provides the student, under the supervision of a faculty member, with the opportunity to design, deliver, and evaluate an undergraduate course.
Prerequisites: grad st; Occ Thpy 900(P); cons instr
Course Rules: Jointly offered w/ and counts as a repeat of HCA 909.
Current Offerings: http://uwm.edu/schedule

BMS 910 Advanced Seminar in Health Sciences
1 cr. Graduate.
Faculty, students, and guests present research topics in the Health Sciences.
Prerequisites: grad st
Course Rules: Retakable to 4 cr max.
Last Taught: Fall 2018, Fall 2017, Fall 2016, Fall 2015.
Current Offerings: http://uwm.edu/schedule

BMS 990 Research and Dissertation
1-6 cr. Graduate.
Preparation of a dissertation under the direction of the student's primary and secondary advisors.
Prerequisites: grad st; cons instr.
Current Offerings: http://uwm.edu/schedule
BMS 999 Advanced Independent Study
1-3 cr. Graduate.
Individualized experience enables student to study current topics of interest to the biomedical scientist. Level of credit assigned based on time required for completion.
Prerequisites: grad st; cons instr.
Current Offerings: http://uwm.edu/schedule