

College of Health Sciences

From the Dean

College of Health Sciences website (<http://www.marquette.edu/chs/index.shtml/>)

Welcome!

The College of Health Sciences features many of Marquette's highest ranked and nationally recognized programs. Our students come to us with the strongest academic credentials at the university, and experience a culture of excellence that includes state-of-the-art research and teaching facilities and many opportunities to interact with faculty scholars who are passionate about teaching, research and service.

Our mission as a Jesuit university is to provide an excellent, rigorous and well-rounded education, and our location in the heart of the city of Milwaukee promises ample opportunity for exposure to the health and medical professions that a major metropolitan setting provides. While you can expect excellence from our faculty, you will be in some elite company with our academically talented students. Whether in our highly rigorous professional programs of study or through outstanding pre-professional and undergraduate education, our dedicated faculty and committed students have created a truly vibrant academic environment that's waiting for you.

Sincerely,

William E. Cullinan, Ph.D.
Dean, College of Health Sciences

College Mission Statement

The College of Health Sciences has the mission of providing outstanding preparation for careers in the health sciences and as health care providers. It is dedicated to improving health care delivery by educating excellent, caring and ethical health care professionals through a rigorous program of teaching, research and service. Our programs of study emphasize critical thinking in the context of clinical and scientific problem solving. Students are instilled with the Jesuit ideals of concern for the physical, emotional and spiritual development of the individual, as well as a lifelong commitment to leadership and learning in the advancement of their personal skills and professions.

Undergraduate College Programs

- Biomedical Sciences, BS (<https://bulletin.marquette.edu/health-sciences/biomedical-sciences-bs/>)
- Biomedical Sciences, Minor (<https://bulletin.marquette.edu/health-sciences/biomedical-sciences-minor/>)
- Exercise Physiology, BS (<https://bulletin.marquette.edu/health-sciences/exercise-science-bs/>)
- Medical Genetics, Minor (<https://bulletin.marquette.edu/health-sciences/medical-genetics-minor/>)
- Medical Laboratory Science, BS (<https://bulletin.marquette.edu/health-sciences/medical-laboratory-science-bs/>)
- Neuroscience, Minor (<https://bulletin.marquette.edu/health-sciences/neuroscience-minor/>)
- Post-Baccalaureate Speech Pathology and Audiology (<https://bulletin.marquette.edu/health-sciences/post-baccalaureate-speech-pathology-audiology/>)
- Speech Pathology and Audiology, BS (<https://bulletin.marquette.edu/health-sciences/speech-pathology-audiology-bs/>)
- Undergraduate Research for Student Enhancement (U-RISE), Concentration (<https://bulletin.marquette.edu/health-sciences/u-rise-concentration/>)

Health Science Professional Programs

- Athletic Training, MATR (<https://bulletin.marquette.edu/health-sciences/athletic-training-ma/>)
- Biomedical Sciences Pre-Dental Enhancement Program (<https://bulletin.marquette.edu/health-sciences/biomedical-sciencespred-entenhancement-program/>)
- Medical Laboratory Science, Certificate (<https://bulletin.marquette.edu/health-sciences/medical-lab-science-certificate/>)
- Occupational Therapy, OTD (<https://bulletin.marquette.edu/health-sciences/occupational-therapy-otd/>)
- Physical Therapy, DPT (<https://bulletin.marquette.edu/health-sciences/physical-therapy-dpt/>)
- Physician Assistant Studies, MPA (<https://bulletin.marquette.edu/health-sciences/physician-assistant-studies-mpa/>)

Graduate Programs

- Biomedical Sciences, MS (<https://bulletin.marquette.edu/graduate/biomedical-sciences-ms/>)
- Exercise and Rehabilitation Science, MS (<https://bulletin.marquette.edu/graduate/exercise-rehabilitation-science-ms/>)
- Exercise and Rehabilitation Science, PHD (<https://bulletin.marquette.edu/graduate/exercise-rehabilitation-science-phd/>)

- Speech-Language Pathology, MS (<https://bulletin.marquette.edu/graduate/speech-language-pathology-ms/>)
- Sports and Exercise Analytics, MS (<https://bulletin.marquette.edu/graduate/sports-exercise-analytics-ms/>)

College of Health Sciences Policies

Students in the College of Health Sciences are expected to comply with the academic requirements and policies listed in the university section (<https://bulletin.marquette.edu/policies/>) of this bulletin and must fulfill the graduation requirements stated in the bulletin in effect the year they entered Marquette.

Students who have interrupted their enrollment from the university typically follow the degree requirements listed in the bulletin in effect during the academic year of their return. Policies and regulations in effect at the time of return apply to all students, regardless of the term of their initial enrollment.

It is the responsibility of students to know and fulfill all university, college/department cognates and major requirements.

While the principal policies and procedures of the college are contained in this section of the bulletin, questions concerning other regulations should be directed to the college or relevant department office.

UNDERGRADUATE COLLEGE

- Academic Dismissal/Probation/Academic Alert (CAA) (<https://bulletin.marquette.edu/health-sciences/policies/dismissal-probation-alert/>)
- Dean's List Criteria (<https://bulletin.marquette.edu/health-sciences/policies/deans-list-criteria/>)
- Degrees Offered (<https://bulletin.marquette.edu/health-sciences/policies/degrees-offered/>)

HEALTH SCIENCE PROFESSIONAL

See individual programs

College of Health Sciences Resources

The following resources are available to College of Health Sciences students.

Student Organizations

American Medical Student Association (AMSA)

This student organization is for students interested in medical school. The organization provides opportunities for students to interact with fellow students and professionals in the medical field. All students in the university interested in applying to medical school are eligible to join.

Biomedical Sciences Student Association (BMSA)

All Biomedical Sciences students are eligible for membership in the Biomedical Sciences Association. The purpose of the organization is to provide students with opportunities to learn more about career opportunities; interact with alumni; develop service opportunities; participate in fund-raising activities; and interact with other students and faculty in a more informal setting.

Medical Laboratory Science

In addition to the university student organizations, medical laboratory science students are eligible for membership in the Medical Laboratory Science Student Council, the American Society for Clinical Laboratory Science (ASCLS) and the American Society for Clinical Pathology (ASCP).

Physical Therapy

Students enrolled in the Department of Physical Therapy are eligible for membership in the Physical Therapy Student Council and are required to become student members in the American Physical Therapy Association during the professional phase of the program.

Physician Assistant Studies

The Student Association of the American Academy of Physician Assistants has awarded a charter membership to the Department of Physician Assistant Studies at Marquette University. All students in the program participate. The organization coordinates fundraising activities, hosts guest lecturers and interacts with other student groups as well as the Wisconsin Academy of Physician Assistants. A major goal of the group is to facilitate student involvement in the political process of their national organization.

Pre-dental Student Organization of Marquette University

This student organization is for students interested in the field of dentistry. The organization provides an opportunity for students to interact with fellow students and professionals in the field of dentistry. All students in the university interested in the field of dentistry are eligible to join.

Speech Pathology and Audiology

The Marquette University Chapter of the National Student Speech-Language-Hearing Association (MU-NSSLHA) is comprised of undergraduate and graduate students interested in the professions of Speech-Language Pathology and Audiology. The organization hosts guest speakers from the professional community, interacts with other student groups and is active in community and charitable organizations.

Pre-Professional Health Studies

Overview

At Marquette University, pre-professional health studies means pursuing a bachelor's degree with the intent to enroll in a professional school following graduation. Choosing a major in the College of Health Sciences provides a strong foundation in preparation for a health professions career in areas such as athletic training, chiropractic, dentistry, forensics, medicine, occupational therapy, optometry, pharmacy, physician assistant, physical therapy, podiatry, etc. The Pre-Health Advising office within the College of Health Sciences works closely with students throughout their undergraduate career to help them identify and achieve what it takes to be a strong candidate for admission to a health professional program.

Admission requirements, including prerequisites, vary greatly among institutions and across disciplines. Students should consult graduate and professional schools of interest to identify specific course requirements. Visit the Pre-Health Advising (<https://www.marquette.edu/pre-health-advising/>) website to explore the services offered and the pre-health information available.

Direct-Admit and Early Admission Options for Health Professional Programs at MU

Overview

The programs listed below are available for admission on a competitive basis to high school seniors applying to MU and/or current MU students in specified majors. Each of these programs is an accelerated program which requires students to complete very specific curriculum requirements prior to entering the professional program in the senior year. As a result, admission to one of these programs may limit a student's ability to study abroad, pursue second majors and/or minors, or participate in other special academic programs.

Direct-Admit and Transfer Admission to Athletic Training

The 3+2 Direct-Admit Athletic Training program is available to high school seniors admitted to the Exercise Physiology major. Students who did not apply or were not accepted as an incoming freshman can still track the pre-athletic training curriculum and apply any time prior to the end of the junior year. Accepted direct-admit and transfer students who meet all eligibility requirements in the first three years of undergraduate study begin the professional phase of the MAT curriculum in the summer after the junior year. This program allows a student to complete both the undergraduate and Master of Athletic Training degrees in five years instead of six years. More detailed information is available in the Athletic Training section (<https://bulletin.marquette.edu/healthscienceprofessional/programs/athletictraining/>).

Direct-Admit and Transfer Admission to Physical Therapy

The 3+3 Direct-Admit Physical Therapy program is available to high school seniors. Within the College of Health Sciences, the Exercise Physiology and Biomedical Sciences majors are options with this program, but majors in other colleges are also options. Students not admitted to this program as incoming freshman may track the pre-PT curriculum and submit a transfer application in the junior year. Accepted Direct-Admit and transfer students who meet all eligibility requirements in the first three years of undergraduate study begin the professional phase of the DPT curriculum in the senior year at MU. This program allows a student to complete both the undergraduate and Doctor of Physical Therapy degrees in six years instead of seven years. Additional information is available on the Physical Therapy Department Admissions (<https://www.marquette.edu/physical-therapy/apply.php>) website.

Direct-Admit and Transfer Admission to Occupational Therapy

The 3+3 Direct-Admit Occupational Therapy program is available to high school seniors. Within the College of Health Science, the Exercise Physiology and Biomedical Sciences majors are option with this program, but majors in other colleges are also options. Students not admitted to this program as an incoming freshman may track the pre-OT curriculum and submit an internal transfer application in their junior year. Accepted Direct-Admit and transfer students who meet all eligibility requirements in the first three years of undergraduate study begin the professional phase of the OTD curriculum in their senior year at MU. This program allows accepted students to complete both the undergraduate and Occupational Therapy Doctorate in six years instead of seven years. More detailed information is available in the Occupational Therapy section (<https://bulletin.marquette.edu/healthscienceprofessional/programs/occupationaltherapy/>).

Early Admission Physician Assistant Studies

Students following the 3+2 pre-PA track in the Biomedical Sciences major have the option of applying to the PA program in the spring/summer of the junior year in the major. Admission to the PA program is on a competitive basis. Acceptance to this program allows a student to complete both the undergraduate and Master of Physician Assistant Studies degree in five years instead of six years. More detailed information can be found on the website for Physician Assistant Studies (<https://www.marquette.edu/physician-assistant/>), as well as the Biomedical Sciences section (<https://bulletin.marquette.edu/health-sciences/biomedical-sciences-bs/>).

Pre-Dental Scholars

The College of Health Sciences participates in the Pre-dental Scholars Program which is available on a competitive admission basis to high school seniors to the biomedical sciences major or first semester freshmen in the major (pending space availability). Participants in this 3+4 program who meet all program requirements to be admitted to the Dental School in the senior year complete both the undergraduate and Doctor of Dental Surgery degrees in a total of seven years instead of eight years. More detailed information can be found in the university Resources and Opportunities section (<https://bulletin.marquette.edu/resources-opportunities/pre-dental-scholars/>), as well as the Biomedical Sciences section (<https://bulletin.marquette.edu/health-sciences/biomedical-sciences-bs/>).

Pre-Law Scholars

The College of Health Sciences participates in the Pre-Law Scholars Program which is available on a competitive admission basis to high school seniors admitted to the biomedical sciences major. Participants in this 3+3 program who meet all program requirements to be admitted to the Law School in the senior year, complete both the undergraduate and Juris Doctor degrees in a total of six years instead of seven years. More detailed information can be found in the university Resources and Opportunities section (<https://bulletin.marquette.edu/resources-opportunities/pre-law-scholars/>).

Accelerated Degree Programs (ADP) Administered through the Graduate School at MU

Overview

These programs, offered through the Graduate School, have approved accelerated degree programs that allow students to begin accumulating credits towards graduate degree completion while still enrolled as an undergraduate. Applications to these programs are typically due in the junior year at MU:

Master of Science in Exercise and Rehabilitation Science - available to undergraduates in the exercise physiology and biomedical sciences majors. More detailed information can be found in the Master's Requirements for the Exercise and Rehabilitation (<https://bulletin.marquette.edu/grad/programs/exerciseandrehabilitation/#majorrequirementstext>) section of the Graduate Bulletin.

Master of Business Administration (STEM MBA) - available to undergraduates in any major in the College of Health Sciences (**Note:** majors with clinical internship requirements may limit the number of graduate credits completed at the undergraduate level). More detailed information can be found in the Master of Business Administration (<https://bulletin.marquette.edu/schoolofmanagement/programs/businessadministration/#masterofbusinessadministrationtext>) section of the Graduate School of Management bulletin.

Dual Degree Programs with Other Universities

Early Assurance PharmD Program through the Medical College of Wisconsin

The College of Health Sciences participates in an Early Assurance PharmD program with the Medical College of Wisconsin's (MCW) School of Pharmacy. The 3+3 Early Assurance PharmD program allows students in the Biomedical Sciences major to earn dual degrees, a bachelor's degree from Marquette University and a Doctor of Pharmacy degree from the Medical College of Wisconsin, in a total of six years. Participants in this program who meet all eligibility requirements after the first three years of the undergraduate studies at MU, matriculate into the PharmD program at MCW after the junior year. Credits completed in the first year at MCW are applied towards the completion of a bachelor's degree at MU. More detailed information can be found in the university Resources and Opportunities section (<https://bulletin.marquette.edu/resources-opportunities/early-assurance-pharmd-program/>), as well as the Biomedical Sciences section (<https://bulletin.marquette.edu/health-sciences/biomedical-sciences-bs/#text>).

Master of Global Health Equity through the Medical College of Wisconsin

Marquette undergraduate students majoring in Biomedical Sciences can apply for admission to the Master of Science Global Health Equity program at the Medical College of Wisconsin in the second term of the junior year. Students accepted into the program are eligible to enroll in up to 12 credits of pre-approved graduate course work during the senior year at MU to fulfill both undergraduate and graduate degree requirements. A maximum of 6 of these 12 credits may be taken at MCW during the senior year. Students who meet all program requirements matriculate to MCW after the senior year upon completion of the undergraduate degree at MU.

Disciplinary Honors

Overview

The Program in Exercise Physiology and the Department of Biomedical Sciences participate in the university's disciplinary honors program. More information about the disciplinary honors program can be found in the respective majors section of the bulletin.

Summer Research Program (SRP)

Overview

The Summer Research Program provides a unique summer program for undergraduates to become immersed in an independent research experience and other enrichment activities under the guidance of a faculty mentor from various majors in the College of Health Sciences. The program is full-time during the summer with participants receiving a stipend. Admission is on a competitive basis and open to students from any major. Visit the

Summer Research Program (<https://www.marquette.edu/biomedical-sciences/summer-research-program.php>) website for additional qualifications and application.

Athletic Training

ATTR 1100 Medical Terminology (1 credits)

Medical terminology organized by body systems with a focus on prefixes, suffixes, word roots and their combining forms.

Prerequisite: EXPH major; or cons. of instr.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ATTR%201100>)

ATTR 7110 Emergency Management (3 credits)

Concepts and skills required for an Athletic Trainer to manage the healthcare of athletes and active individuals in emergent, life threatening and time sensitive situations.

Prerequisite: Enrollment in MATR program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ATTR%207110>)

ATTR 7115 Athletic Training Principles (3 credits)

Introductory skills, system descriptions and critical thinking processes that athletic trainers utilize in the clinical practice setting, including basic taping and bracing skills and concepts, wound care, documentation and common athletic training procedures in different settings.

Prerequisite: Enrollment in MATR program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ATTR%207115>)

ATTR 7120 Pharmacology in Athletic Training (3 credits)

Concepts and content related to pharmacology from the athletic training educational competencies. Topics include: pharmacodynamics, pharmacokinetics, terminology related to pharmacology, legal aspects of medication management, as well as, absorption, distribution, metabolism and elimination of common medications and other drugs as it relates to athletes and the athletic population.

Prerequisite: Enrolled in MAT program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ATTR%207120>)

ATTR 7122 Evidence-Based Decision Making in Athletic Training Practice (1 credits)

Concepts in evaluating and appraising the evidence surrounding areas of athletic training practice, including search strategies, levels of evidence and using the best available evidence in the clinical decision making process.

Prerequisite: ATTR 7115; enrollment in MATR program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ATTR%207122>)

ATTR 7135 Human Anatomy in Athletic Training (4 credits)

A regional and functional approach to human anatomy where all body systems are integrated, with special focus on the systems most pertinent to athletic training. Emphasizes correlations between structure and function. Laboratory included.

Prerequisite: Enrollment in MATR program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ATTR%207135>)

ATTR 7230 Evaluation of the Lower Extremity (3 credits)

Athletic Training evaluation general principles and musculoskeletal, circulatory and neurological evaluation concepts and techniques are instructed and evaluated for the lower extremity. Also includes systems to document and communicate findings with other health professions.

Prerequisite: ATTR 7135 or BISC 7130; enrollment in MATR program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ATTR%207230>)

ATTR 7231 Evaluation of the Upper Extremity (2 credits)

Musculoskeletal, circulatory and neurological evaluation concepts and techniques are instructed and evaluated for the upper extremity. Also includes systems to document and communicate findings with other health professions.

Prerequisite: ATTR 7135 or BISC 7130; enrollment in MATR program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ATTR%207231>)

ATTR 7232 Evaluation of the Spine (2 credits)

Musculoskeletal, circulatory and neurological evaluation concepts and techniques are instructed and evaluated for the spine, thorax and trunk. Also includes systems to document and communicate findings with other health professions.

Prerequisite: ATTR 7135 or BISC 7130; enrollment in MATR program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ATTR%207232>)

ATTR 7260 Modalities in Rehabilitation (3 credits)

Current practices in the use of therapeutic modalities in the treatment and rehabilitation process for active and athletic individuals, including electrical and physical interventions.

Prerequisite: ATTR 7135 or BISC 7130; enrollment in MATR program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ATTR%207260>)

ATTR 7261 Rehabilitation of the Lower Extremity (2 credits)

Current practices in the use of therapeutic interventions in the treatment and rehabilitation process for the lower extremity in active and athletic individuals, including exercise, conditioning and manual techniques.

Prerequisite: ATTR 7230; enrollment in MATR program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ATTR%207261>)

ATTR 7262 Rehabilitation of the Upper Extremity and Spine (2 credits)

Current practices in the use of therapeutic interventions in the treatment and rehabilitation process of the upper extremity and trunk/spine for active and athletic individuals, including exercise, conditioning and manual techniques.

Prerequisite: ATTR 7135 or BISC 7130; enrollment in MATR program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ATTR%207262>)

ATTR 7270 Athletic Training Administration and Management (3 credits)

Contemporary business, management and supervisory/leadership principles applied to the athletic training setting and general health care delivery system.

Prerequisite: ATTR 7115; enrollment in MATR program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ATTR%207270>)

ATTR 7289 Nutrition Applications within Athletic Training (1 credits)

Explores how nutritional factors impact the performance and recovery of athletes through the lens of an athletic trainer. Application-based assignments expand nutrition knowledge within the sphere of athletic training.

Prerequisite: EXPH 4189; enrollment in MATR program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ATTR%207289>)

ATTR 7470 Neurological Disorders and Diseases (3 credits)

Evaluation and treatment strategies for athletic trainers to recognize, evaluate and manage neurological disorders in active and athletic populations.

Prerequisite: ATTR 7115; enrollment in MATR program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ATTR%207470>)

ATTR 7471 Systemic Medical Disorders (3 credits)

Evaluation and treatment strategies for athletic trainers to recognize, evaluate and manage medical disorders in active and athletic populations.

Prerequisite: ATTR 7135 or BISC 7130; enrollment in MATR program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ATTR%207471>)

ATTR 7480 Psychology in Performance and Rehabilitation (3 credits)

Application of current psychological principles within the rehabilitative and sports performance setting to optimize outcomes.

Prerequisite: ATTR 7115; enrollment in MATR program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ATTR%207480>)

ATTR 7570 Biomechanics of Injury in Sport (3 credits)

Injury biomechanics related to athletic activity from the level of tissue stress and strain through full body movement mechanics and the role in injury risk and prevention.

Prerequisite: ATTR 7115; and ATTR 7135 or BISC 7130; enrollment in MATR program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ATTR%207570>)

ATTR 7887 Summative Assessment in Athletic Training (1 credits)

Provides assessment of accomplishment and achievement of the educational standards to become an athletic trainer. Assessments are completed using a combination of methods including quizzes, projects and simulated cases.

Prerequisite: Enrollment in MATR program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ATTR%207887>)

ATTR 7964 Athletic Training Practicum 1 (2 credits)

Supervised clinical experience in an athletic training setting with specific emphasis on emergency care principles. Students gain competence in emergency care through clinical settings and/or simulations.

Prerequisite: Enrollment in MATR program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ATTR%207964>)

ATTR 7966 Athletic Training Practicum 2 (3 credits)

Supervised clinical experience in an athletic training setting, with emphasis on acute injury care and basic athletic training principles. Students demonstrate competence in the acute care of active individuals in a clinical setting and/or through simulations.

Prerequisite: ATTR 7964; enrollment in MATR program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ATTR%207966>)

ATTR 7968 Athletic Training Practicum 3 (3 credits)

Supervised clinical experience in an athletic training setting, with emphasis on evaluation in the athletic training setting. Students demonstrate competence in the evaluation of health care issues in active individuals in the clinical setting and/or through simulations.

Prerequisite: ATTR 7964; ATTR 7966; enrollment in MATR program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ATTR%207968>)

ATTR 7970 Athletic Training Practicum 4 (2 credits)

Supervised clinical experience in an athletic training setting, with emphasis on athletic training practice in a non-traditional setting. Students apply their clinical skills in the care of active individuals in a non-traditional athletic training setting and/or through simulations.

Prerequisite: ATTR 7964; ATTR 7966; ATTR 7968; enrollment in MATR program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ATTR%207970>)

ATTR 7972 Athletic Training Practicum 5 (3 credits)

Supervised, immersive clinical experience in an athletic training setting providing healthcare in a collision sports environment. Students demonstrate competence in the management of active individuals involved in collision sports and through simulations with the athletic training faculty instructor.

Prerequisite: ATTR 7964; ATTR 7966; ATTR 7968; ATTR 7970; enrollment in MATR program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ATTR%207972>)

ATTR 7974 Athletic Training Practicum 6 (3 credits)

Supervised clinical experience in an athletic training setting providing health care in a collision sports environment. Students demonstrate competence in the management of active individuals involved in collisions sports and through simulations with the athletic training faculty instructor.

Prerequisite: ATTR 7964; ATTR 7966; ATTR 7968; ATTR 7970; ATTR 7972; enrollment in MATR program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ATTR%207974>)

ATTR 7976 Athletic Training Immersion Clinical (1-14 credits)

The final supervised, immersive clinical experience providing healthcare in the clinical athletic training setting. Students demonstrate competence in all areas of practice as it relates to their desired career setting.

Prerequisite: Completion of all MATR course work with a C or better (S for all S/U courses). May be taken concurrently with ATTR 7997.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ATTR%207976>)

ATTR 7995 Independent Study in Athletic Training (1-4 credits)

Faculty-supervised, independent study/research of a specific area or topic in Athletic Training.

Prerequisite: Consent required.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ATTR%207995>)

ATTR 7997 Capstone Project in Athletic Training (2 credits)

The culmination of the athletic training educational experience. Students develop a clinical practice question and demonstrate competence in using a variety of resources to answer the question using the best available evidence.

Prerequisite: Completion of all MATR course work with a C or better (S for all S/U courses); cons. of MATR director. Consent required.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ATTR%207997>)

Biomedical Sciences

BISC 1001 Contemporary Issues in Biomedical Sciences (1 credits)

Introduction to the field of biomedical sciences with a special emphasis on current topics in health and medicine, development of critical thinking skills, and professional development. S/U grading basis.

Prerequisite: BISC major with Freshman stndg.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%201001>)

BISC 1015 Principles of Human Anatomy and Physiology (5 credits)

Principles of Human Anatomy and Physiology is an introduction to the structures and functions of the human body. Laboratory included. Does not apply towards the BISC minor and does not meet the needs of many health professional prerequisites.

Prerequisite: NURS major, MLSC major, or cons. of instr.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%201015>)

BISC 1030 Introduction to Dentistry (1 credits)

An introduction to the diverse aspects of the dental profession, featuring guest speakers and hands-on laboratory techniques. S/U grade assessment.

Prerequisite: Cons. of dept. ch. Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%201030>)

BISC 1035 Principles of Human Anatomy (4 credits)

A study of the fundamental anatomical structure and organization of the organs and systems of the human body. Not to be taken for credit by students who have completed BISC 3135. Course does not apply to the BISC major, but does apply to the BISC minor.

Prerequisite: BIOL 1001.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%201035>)

BISC 1060 Chemistry for the Health Professions (3 credits)

An introduction to general chemistry and organic chemistry stressing those aspects necessary for the health professions.

Prerequisite: NURS major.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%201060>)

BISC 2010 Path to Research (1 credits)

Encourages highly motivated students to consider research as a career path by helping to facilitate research readiness and enhance quantitative and methodological skills while also dispelling misconceptions or stereotypes of research. Topics include the scientific method, scientific reasoning, experimental design (e.g., appropriate control groups and experiments), hypothesis testing, record keeping, data interpretation and analysis as well as in-depth discussions of ethical issues that can occur in research environments.

Prerequisite: Soph. stndg.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%202010>)

BISC 2015 Principles of Human Anatomy and Physiology 1 (3 credits)

The first of a two-course human anatomy and physiology sequence. Provides an introduction to the structures and functions of the human body. Laboratory included.

Prerequisite: NURS major.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%202015>)

BISC 2016 Principles of Human Anatomy and Physiology 2 (3 credits)

The second course in a two-course human anatomy and physiology sequence. Provides an introduction to the structures and functions of the human body. Laboratory included.

Prerequisite: BISC 2015 and NURS major; or MLSC major.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%202016>)

BISC 2020 Medical Terminology (1 credits)

Studies medical terminology organized by body systems with a focus on prefixes, suffixes, word roots and their combining form.

Prerequisite: BISC 3135 and BISC major.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%202020>)

BISC 2050 Organic Chemistry for the Health Sciences (1 credits)

An introduction to organic chemistry stressing those aspects necessary for biochemistry and health care.

Prerequisite: CHEM 1001 and CHEM 1002.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%202050>)

BISC 2070 Biochemistry for the Health Professions (3 credits)

Survey course of carbohydrates, lipids, proteins, enzymes, bioenergetics, metabolism of carbohydrates, lipids, proteins, and nucleotides. Emphasis placed on health and disease.

Prerequisite: BISC 1060; or courses in general and organic chemistry; or cons. of instr.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%202070>)

BISC 3110 Nutritional Aspects of Health (3 credits)

Basic principles and fundamentals of human nutrition. Nutrients are discussed in terms of sources, absorption, metabolism and utilization, deficiency, requirements, and assessment of status. Life cycle nutrition and nutrition in disease states. Intended audience: future health care professionals. Not to be taken for credit by students who have earned credit for HEAL 2045.

Prerequisite: Jr. stndg. and a course in biochemistry; or enrolled in the Biomedical Sciences Post-Bacc program; or cons. of instr.

Level of Study: Undergraduate

Marquette Core Curriculum: NSM Basic Needs & Justice

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%203110>)

BISC 3115 Human Microbiology (3 credits)

A medical microbiology course focusing on the general biology of bacterial, viral, fungal and parasitic pathogens of human medical importance and the response of the human host. Important infectious diseases of humans are taught based on body system with an emphasis on etiology, pathogenesis, epidemiology, treatment and control. Basic identification procedures and microbial control (sterilization, disinfection, antibiotics, vaccination) are also addressed.

Prerequisite: BIOL 1002, and a biochemistry course, which may be taken concurrently; or cons. of instr.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%203115>)

BISC 3135 Clinical Human Anatomy (4 credits)

A regional approach to human anatomy where all body systems are integrated. Correlations between structure and function are emphasized. Laboratory included.

Prerequisite: BIOL 1001 and BIOL 1002 and Soph. stndg.; or cons. of instr.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%203135>)

BISC 3136 Gross Anatomy for the Biomedical Sciences (2 credits)

This undergraduate human gross anatomy laboratory course takes a regional approach to the dissection of human cadaveric material and includes all body structures/systems. Space reserved for Biomedical Sciences majors in good standing. Enrollment is limited based upon specimen availability.

Prerequisite: BISC 3135 and cons. of instr. Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%203136>)

BISC 3150 General Pathology (3 credits)

Overview of cellular degenerations, inflammation and neoplasia. Various organ systems and their primary disease states will then be presented. These systems include musculoskeletal, nervous, cardiovascular, pulmonary, reproductive, digestive, endocrine, and integument. Taught using lecture note handouts, Power Point, websites and examination objectives.

Prerequisite: BISC 3135 and BISC 4145, which may be taken concurrently; or enrolled in the Biomedical Sciences Post-Baccalaureate program; or cons. of instr.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%203150>)

BISC 3213 Biochemistry (4 credits)

The chemistry of cells in health and disease. Structure and function of proteins, carbohydrates, lipids, and nucleic acids; enzyme function, cell signaling, cellular metabolism and biological information flow (molecular biology).

Prerequisite: CHEM 2111 or CHEM 2113, or enrolled in the Biomedical Sciences Pre-Dental Post-Baccalaureate program.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%203213>)

BISC 3859 Evolution (3 credits)

Evolution consists of describing its history and analyzing its causes and mechanisms. Emphasizes the general principles of evolution, the hypotheses about the causes of evolutionary change that apply to the most organisms, and the major patterns of change that have characterized many different groups.

Prerequisite: BIOL 1001 and BIOL 1002, a biochemistry course, and cons. of instr. Consent required.

Level of Study: Undergraduate

Marquette Core Curriculum: NSM Crossing Boundaries

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%203859>)

BISC 3929 Reflective Analysis of Global Dental Brigade (0 credits)

Taken in conjunction with a Global Dental Brigade trip. Ignatian pedagogical principles are used to reflect on the influence of race, class and gender in a practical setting. Uses the real world experience students gain from working with people in a different country to build and reflect on, gender, class and racial issues. The goal is to engage students through the use of their shared experience with another culture to direct them to reflect on these issues.

Consistent with the ESSV2 requirement for the Marquette core, it helps students develop skills to engage with a spectrum of people, communities and systems of value. S/U grade assessment

Prerequisite: Participation in Global Dental Brigade prog. Consent required.

Level of Study: Undergraduate

Marquette Core Curriculum: Engage Social Systems & Values 2

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%203929>)

BISC 3954 U-RISE Entering Biomedical Research Seminar 1 (2 credits)

Designed to enhance the independent research experience by equipping students with essential skills to thrive in a research environment. Explore mentor-mentee dynamics, develop a deep understanding of their lab's research focus, and engage in professional development activities such as crafting a CV and preparing for summer research opportunities. First of a four-course sequence.

Prerequisite: Accepted to the URISE program.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%203954>)

BISC 3955 U-RISE Entering Biomedical Research Seminar 2 (2 credits)

Designed to enhance the independent research experience by focusing on developing confidence as a researcher and skills to be productive in the research environment. Develop a strong foundation in their research project's background and build self-efficacy as scientists, tackling challenges like imposter syndrome, stereotype threat, and handling rejection and failure. Students will be coached in science communication, focusing on crafting and delivering effective oral presentations. Second of a four-course sequence.

Prerequisite: Accepted to the URISE program.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%203955>)

BISC 3956 U-RISE Entering Biomedical Research Seminar 3 (2 credits)

Designed to enhance the independent research experience by fostering independence as a researcher, by equipping students with the skills needed to thrive as autonomous scientists. Emphasis is on effective written communication within the research community, including fundamentals of grant writing. Guidance through the process of identifying and applying to PhD programs to pursue their professional goals, with support in crafting CVs and personal statements. Third of a four-course sequence.

Prerequisite: Accepted to the URISE program.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%203956>)

BISC 3957 U-RISE Entering Biomedical Research Seminar 4 (2 credits)

Designed to enhance the independent research experience by focusing on skills needed to become an independent and autonomous researcher. Students receive coaching on how to interview for and select the right PhD program, as well as enhance their scientific communication abilities. A key aspect of the course is refining mentoring and leadership skills, enabling students to serve as role models for novice researchers. Fourth of a four-course sequence.

Prerequisite: Accepted to the URISE program.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%203957>)

BISC 3987 Internship in Biomedical Sciences-Work Period (0 credits)

Working period of a summer co-op or intern experience in an approved biomedical sciences related field. Features educational activity and productive work related to health care delivery or industrial or administrative aspects of health care. S/U grade assessment.

Prerequisite: Cons. of BISC internship dir. Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%203987>)

BISC 3989 Research Internship in Biomedical Sciences-Work Period (0 credits)

Work period of summer, mentored research on a topic approved by Biomedical Sciences in an off-campus research laboratory. S/U grade assessment.

Prerequisite: Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%203989>)

BISC 4010 Neuroeconomics: The Neuroscience of Decision Making (3 credits)

Designed for students who have an understanding of the fundamentals of neuroscience and would like to learn more about how specific brain processes contribute to the decision to follow a course of action. Topics include valuation, learning, emotion, social behavior and action selection.

Prerequisite: BISC 3850, BISC 4140 or PSYC 3601.

Level of Study: Undergraduate

Marquette Core Curriculum: NSM Cgntn, Lang, Mmry/Intlgnc

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204010>)

BISC 4020 Molecular Neuroscience (3 credits)

Examines living brains at the most fundamental level – that of ions, molecules, membrane structures and cells. Touches upon the molecular machinery responsible for information processing by neuronal and non-neuronal brain cells. Focuses on the common motifs involved in intra and inter-cellular communication, including membrane excitability, electrochemical signal transduction, synaptic transmission and short and long-term storage of memories. Uses this information to gain insight into the mechanistic basis of a range of brain states.

Prerequisite: BIOL 1001 and Soph. stndg.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204020>)

BISC 4112 Head and Neck Anatomy (3 credits)

Survey of neuroanatomy, sensory systems and speech, muscular and vascular systems, and osteology of the head and neck. An emphasis is placed on functional anatomy and significant clinical correlates. Laboratory included. Not to be taken for credit by students who are enrolled in or have earned credit for BISC 4113.

Prerequisite: BISC 3135 and BISC major; or cons. of instr.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204112>)

BISC 4113 Anatomy Teaching Practicum (3 credits)

Applies active learning strategies and advanced anatomy knowledge to teach human gross anatomy in a laboratory setting to graduate or professional students as well as advanced undergraduate students. Students are evaluated on teaching and anatomy project presentation. Must have completed Anatomy Fellows Program in previous summer (BISC 9002).

Prerequisite: BISC major and BISC 9002 Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204113>)

BISC 4120 Pharmacology (3 credits)

Covers the fundamentals of human pharmacology and the basic principles dictating drug action within the human body. Focuses on the therapeutic actions and clinical applications of various drug classes with emphasis on cellular mechanisms, physiological responses, adverse reactions and clinical indications, accompanied by general discussion on the pathological conditions for which common therapeutic agents are used.

Prerequisite: A course in biochemistry and BISC 4145; or enrolled in the Biomedical Sciences Post-Baccalaureate program; or cons. of instr.

Level of Study: Undergraduate

Marquette Core Curriculum: NSM Expanding Our Horizons

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204120>)

BISC 4140 Functional Neuroanatomy (3 credits)

Examines the basic structure and function of the central nervous system from spinal cord to cerebral cortex. Material is presented within both clinical and basic contexts. Based on the understanding of the normal circuitry and function of the brain, students progress toward developing the preliminary skills to diagnose or explain clinically relevant neurological disorders. Laboratory included.

Prerequisite: BISC 3135.

Level of Study: Undergraduate

Marquette Core Curriculum: NSM Cgntn, Lang, Mmry/Intlgnc

Interdisciplinary Studies: Cognitive Science

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204140>)

BISC 4142 Science and Society (1 credits)

A discussion-based course focused on topics that are determined collaboratively, but may include human sexuality, mental and physical health, human evolution, race and identity and violence. Students integrate the knowledge gained from past course work to critically read and evaluate popular, journalistic and scholarly writing on topics related to human biology.

Prerequisite: BISC Major, Jr. stndg.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204142>)

BISC 4142H Science and Society (1 credits)

A discussion-based disciplinary honors course focused on topics that are determined collaboratively, but may include human sexuality, mental and physical health, human evolution, race and identity and violence. Students integrate the knowledge gained from past course work to critically read and evaluate popular, journalistic and scholarly writing on topics related to human biology. As an Honors Program course, includes a more intensive research or project component.

Prerequisite: Jr. stndg. and admission to BISC Disciplinary Honors Program.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204142H>)

BISC 4145 Human Physiology (4 credits)

Human physiology including blood and circulation, muscular, neuronal and sensory systems, renal and respiratory systems, digestion, metabolism, reproduction, their control by the endocrine and central nervous systems, and clinical correlates.

Prerequisite: BISC 3135; and BISC 2070 or BISC 3213, which may be taken concurrently; and Jr. stndg.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204145>)

BISC 4146 Physiology In Depth: Contemporary Issues (1 credits)

In depth treatment of selected topics in physiology with an emphasis on contemporary issues relevant to health and physiology.

Prerequisite: BISC 4145. Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204146>)

BISC 4146H Honors Physiology In Depth: Contemporary Issues (1 credits)

In depth treatment of selected topics in physiology with an emphasis on contemporary issues relevant to health and physiology. As an Honors Program course, includes a more intensive research or project component.

Prerequisite: BISC 4145 and admission to BISC Disciplinary Honors Program.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204146H>)

BISC 4147 Human Physiology Laboratory (1 credits)

Uses virtual laboratory technology and a team-based learning approach to investigate fundamental concepts of human physiology. Clinical correlates are emphasized in a problem-based learning format.

Prerequisite: BISC 4145, which may be taken concurrently.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204147>)

BISC 4150 Outbreaks, Epidemics and Pandemics (3 credits)

Through case studies, discussion, and group work, students develop an understanding of how infectious disease epidemics occur, what can be done to control them and why control efforts succeed or fail. By exploring the characteristics of pathogens and human hosts that contribute to disease spread, students gain the knowledge and skills to understand the implications of newly emerging pathogens and are able to advocate for what needs to be done to prevent outbreaks.

Prerequisite: BISC 3115 and Sr. stndg.

Level of Study: Undergraduate

Marquette Core Curriculum: NSM Crossing Boundaries

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204150>)

BISC 4151 Advanced Pathology (1 credits)

In depth coverage of selected topics in pathology, with an emphasis on current topics that are in the news and relevant to health and disease.

Prerequisite: BISC 3150.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204151>)

BISC 4151H Honors Advanced Pathology (1 credits)

In depth coverage of selected topics in pathology, with an emphasis on current topics that are in the news and relevant to health and disease. As an Honors Program course, includes a more intensive research or project component.

Prerequisite: BISC 3150 and admission to BISC Disciplinary Honors Program.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204151H>)

BISC 4153 Epidemiology (3 credits)

An introduction to the basic concepts of epidemiology. The distribution and determinants of diseases in specified populations and the application to control of health problems. Emphasizes epidemiologic study designs for investigating associations between risk factors and disease outcomes. Epidemiological approaches evaluate health services, population health and policy. Applies to either the Health and Society cognate or the BISC major electives, but not both.

Prerequisite: BISC major and Jr. stndg.; or Public Health Equity minor and MLSC 2060; or cons. of instr.

Level of Study: Undergraduate

Marquette Core Curriculum: NSM Individuals & Communities

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204153>)

BISC 4155 Diseases of the Brain (3 credits)

Examines pathological states involving the central nervous system to better understand brain function. Presents opportunities to develop critical thinking skills, utilize the scientific method and explore how research investigates the complexity of brain function, while developing a deeper understanding of the neurosciences. Explores how deficits in cognition and other aspects of brain function provides insight into normal brain function and what it means to be human, by focusing on diseases of the brain.

Prerequisite: BISC 3135 and BISC 4145; or cons. of instr.

Level of Study: Undergraduate

Marquette Core Curriculum: NSM Cgntn, Lang, Mmry/Intlgnc

Interdisciplinary Studies: Cognitive Science

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204155>)

BISC 4157 Global Health (3 credits)

Disease knows no borders. The health of populations in one country can be affected by public health threats or events across the globe. Policy decisions made in a country regarding public health could impact the health of people beyond its borders. Globalization shapes public health challenges and has profound influence on the capacities of countries to respond to health threats that often lie outside the control of any nation and outside health sector. Simply, globalization on health and the transfer of health threats exist. Opportunities across national borders could be utilized to solve global health challenges. Learners are introduced to the world's vast diversity of determinants of health and disease. Learners have an opportunity to critically appraise health systems in different parts of the world. Learners analyze current and emerging global health priorities, including infectious diseases, poverty, conflicts and emergencies, health inequity, principles and impact of health systems reforms, and major global initiatives for disease prevention and health promotion. Explores an understanding of a global health system and its shortcomings, challenges and ways of addressing global public health challenges. Importantly, helps learners to develop skills in critical thinking and problem solving in relation to health issues that cross geographical boundaries. Can apply to either the Health and Society cognate, or the BISC major electives, but not both.

Prerequisite: Jr. stndg.; and MLSC 2060 or BISC 4153.

Level of Study: Undergraduate

Marquette Core Curriculum: NSM Crossing Boundaries

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204157>)

BISC 4160 Human Molecular Pathology and Clinical Therapeutics (3 credits)

Presents an overview of the cellular and molecular mechanisms of major human diseases. Pathologies examined include metabolic (Obesity, Diabetes, cardiovascular), neoplastic cancer, neurodegenerative (Alzheimer, Parkinson, Huntington, ALS), and neuropsychiatric (Depression, Schizophrenia, Autism, Stress) diseases. Explores the mechanism of action of clinical interventions and FDA-approved therapeutics. Provides the opportunity to develop critical thinking skills by integrating multi-faceted information about human pathologies. It is a great primer for pre-professional students.

Prerequisite: A course in biochemistry, which may be taken concurrently.

Level of Study: Undergraduate

Marquette Core Curriculum: NSM Expanding Our Horizons

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204160>)

BISC 4165 Microbiology Laboratory (1 credits)

Introduction to various topics of microbiology laboratory including the isolation, cultivation, enumeration and characterization of bacteria of human medical importance. Students develop proficiency in aseptic transfer of organisms, gram staining, culturing on differential and selective media, biochemical testing and aseptic technique. Students use a light microscope to examine clinically relevant samples of pathogenic bacteria, fungi, protozoa and helminths. Specialized techniques include: antibiotic susceptibility testing, anaerobic cultivation, preparation and staining of fungi and immunological assays. Lab fee.

Prerequisite: BISC 3115.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204165>)

BISC 4170 Biology, Moral Behavior and Policy (3 credits)

A multidisciplinary approach to moral decision making as it relates to public policy in healthcare. Examines the foundation of moral behavior and advances to the neural substrates of decision making with an emphasis on the learning, reward processing, and emotional systems that control behavior. Also incorporates discussions of specific ethical issues in biomedical sciences, paying particular attention to the nature of the dilemma and the voices guiding public policy. BISC 4170 can apply to either the Health and Society cognate, or the BISC major electives, but not both.

Prerequisite: BISC 3135.

Level of Study: Undergraduate

Marquette Core Curriculum: NSM Individuals & Communities

Interdisciplinary Studies: Cognitive Science

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204170>)

BISC 4173 Principles of Human Embryology (3 credits)

System by system approach to the understanding of the sequence of human embryonic and fetal development. Covers early events, including gametogenesis, implantation and placentation, to give a foundation for discussing the development of major organ systems. Discusses the underlying causes of morphological errors in development which lead to congenital malformations. Stresses the effects of harmful (teratogenic) substances early in the developmental period. Provides a basic understanding of early inductive influences on major organ systems.

Prerequisite: BIOL 1002, BISC 3135, and Jr. stndg.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204173>)

BISC 4210 Biology of Aging (3 credits)

Explore clinical, behavioral, genetic and cellular aspects of human aging. Maintains a focus on how aging occurs at the molecular, cellular and systems level using preclinical work in model organisms and how this contributes to decline in physiological processes and emergence of diseases commonly associated with aging as well as those that are not (schizophrenia, depression, addiction). Additional focus is placed on clinical aspects of aging, including patient care and current/novel anti-aging therapies being utilized in the clinic.

Prerequisite: BISC 4145.

Level of Study: Undergraduate

Marquette Core Curriculum: NSM Expanding Our Horizons

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204210>)

BISC 4214 Advanced Biochemistry (1 credits)

Biochemistry is the body of knowledge upon which much of medical science is built. A living cell requires three things in order to maintain and propagate life: precursors, energy and information. Designed around the in depth examination of structure and function of selected precursors; how they are used to generate energy, store energy, or build more complex biomolecules; and how the information molecules control these processes. The topics covered depend on current health news and student interest.

Prerequisite: BISC 3213. Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204214>)

BISC 4214H Honors Advanced Biochemistry (1 credits)

Biochemistry is the body of knowledge upon which much of medical science is built. A living cell requires three things in order to maintain and propagate life: precursors, energy and information. Designed around the in depth examination of structure and function of selected precursors; how they are used to generate energy, store energy, or build more complex biomolecules; and how the information molecules control these processes. The topics covered depend on current health news and student interest. As an Honors Program course, includes a more intensive research or project component.

Prerequisite: BISC 3213 and admission to BISC Disciplinary Honors Program.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204214H>)

BISC 4275 Modern Plagues: Stress, Trauma and Addiction (3 credits)

Examines the biological underpinnings and consequences of stress, post-traumatic stress disorder and addiction and explores their interrelationships and societal impacts.

Prerequisite: BISC 4145 and cons. of instr. Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204275>)

BISC 4325 Endocrinology (3 credits)

Introduction to the field of endocrinology. Focuses on understanding the endocrine system, principles of hormone regulation, hormone signaling mechanisms and endocrine disorders. Topics include reproduction, stress responses, metabolic function, growth and homeostasis.

Prerequisite: BISC 4145 or BIOL 4701.

Level of Study: Undergraduate

Marquette Core Curriculum: NSM Basic Needs & Justice, Writing Intensive

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204325>)

BISC 4340 Human and Applied Medical Genetics (3 credits)

Provides an overview of genetic principles that are relevant to human health and disease. Topics include: packaging and sequence architecture of the human genome, Human Genome Project, patterns of Mendelian inheritance in humans, development, genetic alterations and metabolic disease hemoglobinopathies, immunogenetics, genetic testing and gene therapy. Consists of didactic lectures with interspersed clinical cases. Intended for students interested in a career in medical professions.

Prerequisite: A course in biochemistry: BISC 2070, BISC 3213, BIOL 3101 or CHEM 4530.

Level of Study: Undergraduate

Marquette Core Curriculum: NSM Expanding Our Horizons

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204340>)

BISC 4341 Advanced Cellular Genetics and Cancer (1 credits)

A discussion-based focus on current advances in cellular genetics and cancer research. Students discuss current articles from the news or the primary literature related to the class topics. Includes a lecture component to provide background information for each topic.

Prerequisite: BISC 4340.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204341>)

BISC 4341H Honors Advanced Cellular Genetics and Cancer (1 credits)

A discussion-based focus on current advances in cellular genetics and cancer research. Students discuss current articles from the news or the primary literature related to the class topics. Includes a lecture component to provide background information for each topic. As an Honors Program course, includes a more intensive research or project component.

Prerequisite: BISC 4340 and admission to BISC Disciplinary Honors Program.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204341H>)

BISC 4342 Epigenetics and Human Disease (3 credits)

Focuses on epigenetic processes in humans and the epigenetic basis of human diseases. Provides a foundation for biomedical science and biology students, particularly pre-med and pre-health students.

Prerequisite: A course in biochemistry, which may be taken concurrently.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204342>)

BISC 4381 Politics of U.S. Health Care (3 credits)

Examines the American health care system, health care policies, and underlying politics. Provides an overview of the organization and financing of health care in the United States. Examines the impact of the political system, political parties and interest groups, and values on the health care system and health policies at national and state levels. Covers health care reform politics, including the Democrats' 2010 Affordable Care Act and Republican reform alternatives. Also focuses on the social determinants of health and policies for vulnerable populations. Applies toward the Health and Society cognate. Same as POSC 4381.

Prerequisite: Jr. stndg.

Level of Study: Undergraduate

Interdisciplinary Studies: Culture, Health and Illness, Peace Studies

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204381>)

BISC 4460 Practical Cases in Medicine (3 credits)

Provides an exciting opportunity to explore real-life, medical scenarios where students can apply the science they have learned throughout their undergraduate education to diagnose and develop treatment options. For each clinical case, students also examine how socio-cultural factors determine health outcomes. This experience is reinforced with service learning. Due to the medical nature of the clinical cases utilized in the course, preference is given to pre-medical and pre-physician assistant students.

Prerequisite: BISC 4145 and cons. of instr. Consent required.

Level of Study: Undergraduate

Marquette Core Curriculum: Engage Social Systms & Values 2, NSM Basic Needs & Justice

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204460>)

BISC 4461 Comparative Health Politics and Policy (3 credits)

Explores through comparative analysis the ways in which different nations address the goals of equitable access, affordability and quality in health care. Considers the similarities and differences in health policy challenges facing rich and developing nations. Employs comparative analysis of different models of health care provisions and financing, and examines the underlying politics of health care systems and policies in different countries. Same as POSC 4461/5461.

Prerequisite: Jr. stndg.; or enrolled in the Biomedical Sciences Post-Baccalaureate program. Consent required.

Level of Study: Undergraduate

Interdisciplinary Studies: Culture, Health and Illness, Peace Studies

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204461>)

BISC 4514 Human Microanatomy (4 credits)

A study of the microscopic structure of cells, tissues and organs of the human body. Emphasizes structure-function relationships to build a foundation for physiology and pathology. Includes a laboratory to aid in the identification and understanding of the tissues and organs of the body using a virtual microscope. Incorporates case studies to help develop critical thinking and connect basic microanatomical knowledge to real-world applications.

Prerequisite: BIOL 1001 and BISC 3135; or cons. of instr.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204514>)

BISC 4850 Systems Neuroscience (3 credits)

Broad overview of neural systems supporting perception, learning and behavior. Highly integrative with various thematic content, including functional organization of the nervous system, sensory and motor systems, neural encoding, motivation, emotion, learning and memory. Discusses the application of each topic to mental health.

Prerequisite: BIOL 1001 and Jr. stndg.

Level of Study: Undergraduate

Marquette Core Curriculum: NSM Cgtn, Lang, Mmry/Intlgnc

Interdisciplinary Studies: Cognitive Science

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204850>)

BISC 4851 Advanced Systems Neuroscience (1 credits)

Discusses current topics in neuroscience research to develop an appreciation for how neuroscientists unlock the mysteries of the brain to better understand human health and disease.

Prerequisite: BISC 3850.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204851>)

BISC 4851H Honors Advanced Systems Neuroscience (1 credits)

Discusses current topics in neuroscience research to develop an appreciation for how neuroscientists unlock the mysteries of the brain to better understand human health and disease. As an Honors Program course, includes a more intensive research or project component.

Prerequisite: BISC 3850 and admission to BISC Disciplinary Honors Program. Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204851H>)

BISC 4931 Topics in Biomedical Sciences (1-3 credits)

Selected topics in biomedical sciences. Specific topics will be designated in the Schedule of Classes.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204931>)

BISC 4931H Honors Topics in Biomedical Science (1-3 credits)

Selected topics in biomedical sciences. Specific topics will be designated in the Schedule of Classes.

Prerequisite: Cons. of dept. ch. and admission to BISC Disciplinary Honors Program.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204931H>)

BISC 4953 Readings in Human Anatomy (1 credits)

Explores and discusses primary literature in human gross anatomy and related fields. Students choose primary literature of interest and class sessions consist in student-lead discussions of weekly readings. Assignments include reflective writing and presentations.

Prerequisite: BISC 3136 or BISC 3112, which may be taken concurrently.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204953>)

BISC 4953H Honors Readings in Human Anatomy (1 credits)

Explores and discusses primary literature in human gross anatomy and related fields. Students choose primary literature of interest and class sessions consist in student-lead discussions of weekly readings. Assignments include reflective writing and presentations. As an Honors Program course, includes a more intensive research or project component.

Prerequisite: BISC 3136 or BISC 3112, which may be taken concurrently, and admission to BISC Disciplinary Honors Program.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204953H>)

BISC 4964 AI and Machine Learning Practicum in Neuroscience (1-3 credits)

Internship-style opportunity where students learn and apply modern machine learning and artificial intelligence techniques in neuroscience. Students are expected to be either already familiar with basics of Python or other equivalent programming language, or be willing to rapidly learn under researcher guidance.

Prerequisite: BIOL 1001, COSC 1010 and cons. of instr. Recommended: COSC 1000 or familiarity with basics of Python or equiv. programming language. Highly recommended: COSC 1020. Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204964>)

BISC 4986 Internship in Biomedical Sciences (1-3 credits)

Co-op or intern experience in the biomedical industry. Features educational activity and productive work related to health care delivery or industrial or administrative aspects of health care. S/U grade assessment. Limited to a maximum of 6 credits with a maximum 3 credits applied towards the BISC major.

Prerequisite: Cons. of internship dir. Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204986>)

BISC 4987 Internship in Biomedical Sciences-Grading Period (1-3 credits)

Grading period of a summer co-op or intern experience in an approved biomedical sciences related field. S/U grade assessment. Limited to a maximum of 6 credits with a maximum of 3 credits applied toward the BISC major.

Prerequisite: Cons. of BISC internship director. Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204987>)

BISC 4988 Research Internship in Biomedical Sciences (1-3 credits)

Mentored research on a topic approved by Biomedical Sciences in an off-campus research laboratory. Can be taken for a maximum total of 6 credits, maximum of 3 credits can be applied toward BISC major. S/U grade assessment.

Prerequisite: Cons. of dept. ch. Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204988>)

BISC 4989 Research Internship in Biomedical Sciences-Grading Period (1-3 credits)

Grading period of summer, mentored research on a topic approved by Biomedical Sciences in an off-campus research laboratory. Limited to a maximum of 6 credits with a maximum of 3 credits applied toward the BISC major. S/U grade assessment.

Prerequisite: Cons. of dept. ch. Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204989>)

BISC 4991H Honors Community Engagement in Biomedical Sciences (1-3 credits)

Students are expected to not just be involved in community engagement, but to develop a new community engagement program. At the end of the term students give a PowerPoint presentation to the biomedical sciences faculty. A paper may be required by the faculty mentor. As an Honors Program course, includes a more intensive research or project component. Can be taken for a maximum total of 6 credits, maximum of 3 credits can be applied towards BISC major.

Prerequisite: Admission to BISC Disciplinary Honors Program. Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204991H>)

BISC 4995 Independent Study in Biomedical Sciences (1-6 credits)

Research on a selected topic under the direction of a faculty member of the Department of Biomedical Sciences. Can be taken for a maximum total of 6 credits, maximum of 3 credits can be applied towards BISC major.

Prerequisite: Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204995>)

BISC 4995H Honors Independent Study in Biomedical Sciences (1-6 credits)

Research on a selected topic under the direction of a faculty member of the Department of Biomedical Sciences. Can be taken for a maximum total of 6 credits, maximum of 3 credits can be applied towards BISC major. As an Honors Program course, includes a more intensive research or project component.

Prerequisite: Admission to BISC Disciplinary Honors Program. Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204995H>)

BISC 4997H Capstone for Disciplinary Honors Program in Biomedical Sciences (1 credits)

Designed to assist the student in reflecting on the entirety of their honors experience and generating a comprehensive presentation of that experience. As an Honors Program course, includes a more intensive research or project component.

Prerequisite: Admission to BISC Disciplinary Honors Program.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%204997H>)

BISC 5010 Neuroeconomics: The Neuroscience of Decision Making (3 credits)

Designed for students who have an understanding of the fundamentals of neuroscience and would like to learn more about how specific brain processes contribute to the decision to follow a course of action. Topics include valuation, learning, emotion, social behavior and action selection.

Prerequisite: Admitted to the BISC-MS program; or cons. of instr.

Level of Study: Graduate

Marquette Core Curriculum: NSM Cgntn, Lang, Mmry/Intlgnc

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%205010>)

BISC 5020 Molecular Neuroscience (3 credits)

Examines living brains at the most fundamental level – that of ions, molecules, membrane structures and cells. Touches upon the molecular machinery responsible for information processing by neuronal and non-neuronal brain cells. Focuses on the common motifs involved in intra and inter-cellular communication, including membrane excitability, electrochemical signal transduction, synaptic transmission and short and long-term storage of memories. Uses this information to gain insight into the mechanistic basis of a range of brain states.

Prerequisite: Admitted to the BISC-MS program; or cons. of instr.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%205020>)

BISC 5112 Head and Neck Anatomy (3 credits)

Survey of neuroanatomy, sensory systems and speech, muscular and vascular systems, and osteology of the head and neck. An emphasis is placed on functional anatomy and significant clinical correlates. Laboratory included. Not to be taken for credit by students who are enrolled in or have earned credit for BISC 4113.

Prerequisite: Admitted to the BISC-MS program.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%205112>)

BISC 5135 Clinical Human Anatomy (4 credits)

A regional approach to human anatomy where all body systems are integrated. Emphasizes correlations between structure and function. Laboratory included.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%205135>)

BISC 5140 Functional Neuroanatomy (3 credits)

Examines the basic structure and function of the central nervous system from spinal cord to cerebral cortex. Material is presented within both clinical and basic contexts. Based on the understanding of the normal circuitry and function of the brain, students progress toward developing the preliminary skills to diagnose or explain clinically relevant neurological disorders. Laboratory included.

Prerequisite: Enrolled in the BISC pre-dental enhancement program or NRSC doctoral program.

Level of Study: Graduate

Marquette Core Curriculum: NSM Cgntn, Lang, Mmry/Intlgnc

Interdisciplinary Studies: Cognitive Science

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%205140>)

BISC 5145 Human Physiology (4 credits)

Human physiology including blood and circulation, muscular, neuronal and sensory systems, renal and respiratory systems, digestion, metabolism, reproduction, their control by the endocrine and central nervous systems, and clinical correlates.

Prerequisite: Enrolled in the BISC pre-dental enhancement program.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%205145>)

BISC 5155 Diseases of the Brain (3 credits)

Examines pathological states involving the central nervous system to better understand brain function. Presents opportunities to develop critical thinking skills, utilize the scientific method and explore how research investigates the complexity of brain function, while developing a deeper understanding of the neurosciences. Explores how deficits in cognition and other aspects of brain function provides insight into normal brain function and what it means to be human, by focusing on diseases of the brain.

Prerequisite: Enrollment in the NRSC doctoral program; or cons. of instr.

Level of Study: Graduate

Marquette Core Curriculum: NSM Cgntn, Lang, Mmry/Intlgnc

Interdisciplinary Studies: Cognitive Science

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%205155>)

BISC 5160 Human Molecular Pathology and Clinical Therapeutics (3 credits)

Presents an overview of the cellular and molecular mechanisms of major human diseases. Pathologies examined include metabolic (Obesity, Diabetes, cardiovascular), neoplastic cancer, neurodegenerative (Alzheimer, Parkinson, Huntington, ALS), and neuropsychiatric (Depression, Schizophrenia, Autism, Stress) diseases. Explores the mechanism of action of clinical interventions and FDA-approved therapeutics. Provides the opportunity to develop critical thinking skills by integrating multi-faceted information about human pathologies. It is a great primer for pre-professional students.

Level of Study: Graduate

Marquette Core Curriculum: NSM Expanding Our Horizons

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%205160>)

BISC 5170 Biology, Moral Behavior and Policy (3 credits)

A multidisciplinary approach to moral decision making as it relates to public policy in healthcare. Examines the foundation of moral behavior and advances to the neural substrates of decision making with an emphasis on the learning, reward processing, and emotional systems that control behavior. Also incorporates discussions of specific ethical issues in biomedical sciences, paying particular attention to the nature of the dilemma and the voices guiding public policy. BISC 4170 can apply to either the Health and Society cognate, or the BISC major electives, but not both.

Prerequisite: Admitted to the BISC-MS program; or cons. of instr.

Level of Study: Graduate

Marquette Core Curriculum: NSM Individuals & Communities

Interdisciplinary Studies: Cognitive Science

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%205170>)

BISC 5173 Principles of Human Embryology (3 credits)

System by system approach to the understanding of the sequence of human embryonic and fetal development. Covers early events, including gametogenesis, implantation and placentation, to give a foundation for discussing the development of major organ systems. Discusses the underlying causes of morphological errors in development which lead to congenital malformations. Stresses the effects of harmful (teratogenic) substances early in the developmental period. Provides a basic understanding of early inductive influences on major organ systems.

Prerequisite: Enrolled in the BISC pre-dental enhancement program.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%205173>)

BISC 5325 Endocrinology (3 credits)

Introduction to the field of endocrinology. Focuses on understanding the endocrine system, principles of hormone regulation, hormone signaling mechanisms and endocrine disorders. Topics include reproduction, stress responses, metabolic function, growth and homeostasis.

Prerequisite: Enrolled in the BISC pre-dental enhancement program or NRSC doctoral program.

Level of Study: Graduate

Marquette Core Curriculum: NSM Basic Needs & Justice, Writing Intensive

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%205325>)

BISC 5340 Human and Applied Medical Genetics (3 credits)

Provides an overview of genetic principles that are relevant to human health and disease. Topics include: packaging and sequence architecture of the human genome, Human Genome Project, patterns of Mendelian inheritance in humans, development, genetic alterations and metabolic disease hemoglobinopathies, immunogenetics, genetic testing and gene therapy. Consists of didactic lectures with interspersed clinical cases. Intended for students interested in a career in medical professions.

Prerequisite: Enrolled in the BISC pre-dental enhancement program.

Level of Study: Graduate

Marquette Core Curriculum: NSM Expanding Our Horizons

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%205340>)

BISC 5341 Advanced Cellular Genetics and Cancer (1 credits)

A discussion-based focus on current advances in cellular genetics and cancer research. Students discuss current articles from the news or the primary literature related to the class topics. Includes a lecture component to provide background information for each topic.

Prerequisite: Admitted to the BISC-MS program.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%205341>)

BISC 5342 Epigenetics and Human Disease (3 credits)

Focuses on epigenetic processes in humans and the epigenetic basis of human diseases. Provides a foundation for biomedical science and biology students, particularly pre-med and pre-health students.

Prerequisite: Admitted to the BISC-MS program.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%205342>)

BISC 5850 Systems Neuroscience (3 credits)

Broad overview of neural systems supporting perception, learning and behavior. Highly integrative with various thematic content, including functional organization of the nervous system, sensory and motor systems, neural encoding, motivation, emotion, learning and memory. Discusses the application of each topic to mental health.

Level of Study: Graduate

Marquette Core Curriculum: NSM Cgntn, Lang, Mmry/Intlgnc

Interdisciplinary Studies: Cognitive Science

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%205850>)

BISC 5964 AI and Machine Learning Practicum in Neuroscience (1-3 credits)

Internship-style opportunity where students learn and apply modern machine learning and artificial intelligence techniques in neuroscience. Students are expected to be either already familiar with basics of Python or other equivalent programming language, or be willing to rapidly learn under researcher guidance.

Prerequisite: Consent required.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%205964>)

BISC 6005 Professional Development 1 (0 credits)

Addresses the professional skills for students to become successful in the workplace. Includes career discernment, resume/CV construction, interviewing skills and communication skills. S/U grade assessment.

Prerequisite: Admitted to the BISC-MS prog.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%206005>)

BISC 6006 Professional Development 2 (0 credits)

Addresses the professional skills for students to become successful in the workplace. Includes career discernment, resume/CV construction, interviewing skills and communication skills. S/U grade assessment.

Prerequisite: Admitted to the BISC-MS prog.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%206006>)

BISC 6007 Professional Development 3 (0 credits)

Addresses the professional skills for students to become successful in the workplace. Includes career discernment, resume/CV construction, interviewing skills and communication skills. S/U grade assessment.

Prerequisite: Admitted to the BISC-MS prog.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%206007>)

BISC 6010 Laboratory Fundamentals (2 credits)

Explores the essential principles required for a biomedical sciences laboratory setting. Studies fundamental laboratory principles, proper lab hygiene, safety protocols, and regulatory compliance within a research or biotech laboratory environment through hands-on experiences. Emphasizes bench techniques for foundational molecular and cellular assays. Covers data management and documentation methods required to ensure rigorous and reproducible scientific experiments from design to implementation to analysis.

Prerequisite: Enrolled in the BISC-MS prog.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%206010>)

BISC 6030 Programming for Research (3 credits)

Introductory level of programming skills in Python and R. Students apply these skills to problems in biomedical research and health science services.

Prerequisite: Admitted to the BISC-MS prog.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%206030>)

BISC 6035 Advanced Statistics and Research Methods (3 credits)

The conceptual bases underlying descriptive and inferential statistics and application to construct and test hypotheses using sound research methods.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%206035>)

BISC 6040 Advanced Lab Techniques 1 (2-3 credits)

Develops skills and competencies needed for a career in biomedical research. Builds on the essential principles of proper lab hygiene, safety protocols and regulatory compliance, along with data management and documentation strategies. Provides experience and understanding on more advanced techniques including histology, cell culture, immunohistochemistry, fluorescent imaging, western blotting and molecular genetics, as well as the proper and ethical usage of small animals in biomedical research.

Prerequisite: Enrolled in the BISC-MS prog. or NRSC prog.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%206040>)

BISC 6041 Advanced Lab Techniques 2 (2-3 credits)

Continues the exploration of advanced techniques found in a modern neuroscience research lab. Examines the theory behind each technique and develops competency at the bench. Advanced techniques explored may include electrophysiology, HPLC, fluorescence-based cell sorting, 2-photon microscopy, and in-vivo neural circuit manipulation strategies

Prerequisite: BISC 6040 and enrolled in the BISC-MS prog. or NRSC prog.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%206041>)

BISC 6050 Discovery to Translation and Beyond (3 credits)

Overview of the biomedical sciences discovery to translation process. Placing biomedical innovations in a societal context, the role of the drug discovery process, intellectual property and the multi-modal types of therapeutics development is discussed. The approach focuses on how the pharmaceutical industry conducts discovery to translation R&D.

Prerequisite: Enrolled in BISC-MS program.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%206050>)

BISC 6060 Biotech Entrepreneurship: The Business of Doing Science (3 credits)

Overview of the biotechnology commercialization process. Placing biotech innovations in a societal context, the role of intellectual property, government policies and regulations, marketplace economics and ethical debates on the development and commercialization of new life science technologies is discussed. The approach focuses on both large enterprise models as well as smaller entrepreneurial approaches to technology commercialization and the principles needed to translate research from a lab bench to the marketplace.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%206060>)

BISC 6097 Laboratory Research in Neuroscience (1 credits)

Independent research of second year graduate students based on their dissertation research laboratory; includes lab group meetings, literature research, bench work and presentation of findings.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%206097>)

BISC 6140 Advanced Studies in Human Gross Anatomy (5 credits)

In-depth study of the limbs, back, thorax, abdomen, pelvis, head and neck regions of the human body through both dissections and interactive didactic modules.

Prerequisite: College anatomy course; enrolled in BISC-MS program.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%206140>)

BISC 6931 Topics in Biomedical Sciences (1-3 credits)

Selected topics in biomedical sciences. Specific topics will be designated in the Schedule of Classes.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%206931>)

BISC 6956 Scientific Pedagogy Seminar (2 credits)

Provides basic skills in pedagogy for instruction in upper-level science courses. Includes syllabus design, assessment methods and student engagement, as well as creative curriculum design.

Prerequisite: Admitted to the BISC-MS prog.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%206956>)

BISC 6964 Career Practicum (2 credits)

Prepares the student with hands-on career-enabling skills and experiences depending on the focus the student chooses. Includes a career skill seminar (laboratory focus: laboratory techniques and management; instructional focus: science pedagogy and instruction), a career practicum (laboratory focus: collaborative or faculty research lab or industry lab; instructional focus: mentored experience in classroom learning).

Prerequisite: Enrolled in BISC-MS program.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%206964>)

BISC 6995 Independent Study in Biomedical Sciences (1-6 credits)

Research on a selected topic under the direction of a faculty member of the Department of Biomedical Sciences.

Prerequisite: Cons. of dept. ch. Consent required.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%206995>)

BISC 6998 Scholarly Project (3 credits)

Identification of a gap of knowledge and formulate, implement and present a scholarly or a laboratory research-based project that results in a tangible product which contributes to and enhances biomedical sciences knowledge, biomedical laboratory advancement and/or pedagogy.

Prerequisite: Enrolled in BISC-MS program.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%206998>)

BISC 7001 Principles of Dentistry (1 credits)

Surveys the dental profession from the perspectives of participating clinicians, residents and students. Included is an introduction to clinical specialties, procedures, practice settings, as well as alternatives to clinical practice.

Prerequisite: Enrolled in the BISC pre-dental enhancement program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%207001>)

BISC 7002 Dental Health and Society (1 credits)

An introduction to the field of dentistry with an emphasis on how it can impact an individual's overall health and address dental health disparities in the country.

Prerequisite: Enrolled in the BISC pre-dental enhancement program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%207002>)

BISC 7005 Professional Development 1 (0 credits)

Designed to focus on and improve the skills necessary for a successful application to dental school or other graduate/career path upon completion of the program. Focuses on the application building aspect within career development. S/U grade assessment.

Prerequisite: Enrolled in the BISC pre-dental enhancement program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%207005>)

BISC 7006 Professional Development 2 (0 credits)

Designed to focus on and improve the skills necessary for a successful application to dental school or other graduate/career path upon completion of the program. Focuses on the interview skill aspect of career development. S/U grade assessment.

Prerequisite: Enrolled in the BISC pre-dental enhancement program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%207006>)

BISC 7007 Professional Development 3 (0 credits)

Designed to focus on and improve the skills necessary for a successful application to dental school or other graduate/career path upon completion of the program. Focuses on the transition from the post-baccalaureate program to the student's future goals. S/U grade assessment.

Prerequisite: Enrolled in the BISC pre-dental enhancement program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%207007>)

BISC 7021 Medical and Dental Terminology (1 credits)

Provides a foundation for the understanding and use of common terminology in the medical field, with particular emphasis on dentistry. Designed to introduce basic prefixes, suffixes, and word roots, and their combining forms, as well as advanced clinical terminology specific to the dental profession.

Prerequisite: Enrolled in the BISC pre-dental enhancement program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%207021>)

BISC 7130 Human Gross Anatomy (5 credits)

A human gross anatomy course including lecture and a cadaver dissection laboratory. Anatomy of the limbs, back, thorax, abdomen, pelvis, and head and neck is approached on a regional basis. Lectures emphasize regional anatomical relationships, functional aspects of the systems, and provide a guide to the dissections. Additional lab fee applies.

Prerequisite: PHTH, PHAS or OPTH major.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%207130>)

BISC 7150 Outbreaks, Epidemics and Pandemics (3 credits)

Through case studies, discussion, and group work, students develop an understanding of how infectious disease epidemics occur, what can be done to control them and why control efforts succeed or fail. By exploring the characteristics of pathogens and human hosts that contribute to disease spread, students gain the knowledge and skills to understand the implications of newly emerging pathogens and are able to advocate for what needs to be done to prevent outbreaks.

Prerequisite: Enrolled in the BISC pre-dental enhancement program.

Level of Study: Health Sciences Professional

Marquette Core Curriculum: NSM Crossing Boundaries

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%207150>)

BISC 7153 Epidemiology (3 credits)

An introduction to the basic concepts of epidemiology. The distribution and determinants of diseases in specified populations and the application to control of health problems. Emphasizes epidemiologic study designs for investigating associations between risk factors and disease outcomes. Epidemiological approaches evaluate health services, population health and policy. Applies to either the Health and Society cognate or the BISC major electives, but not both.

Prerequisite: Enrolled in the BISC pre-dental enhancement program.

Level of Study: Health Sciences Professional

Marquette Core Curriculum: NSM Individuals & Communities

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%207153>)

BISC 7157 Global Health (3 credits)

Disease knows no borders. The health of populations in one country can be affected by public health threats or events across the globe. Policy decisions made in a country regarding public health could impact the health of people beyond its borders. Globalization shapes public health challenges and has profound influence on the capacities of countries to respond to health threats that often lie outside the control of any nation and outside health sector. Simply, globalization on health and the transfer of health threats exist. Opportunities across national borders could be utilized to solve global health challenges. Learners are introduced to the world's vast diversity of determinants of health and disease. Learners have an opportunity to critically appraise health systems in different parts of the world. Learners analyze current and emerging global health priorities, including infectious diseases, poverty, conflicts and emergencies, health inequity, principles and impact of health systems reforms, and major global initiatives for disease prevention and health promotion. Explores an understanding of a global health system and its shortcomings, challenges and ways of addressing global public health challenges. Importantly, helps learners to develop skills in critical thinking and problem solving in relation to health issues that cross geographical boundaries. Can apply to either the Health and Society cognate, or the BISC major electives, but not both.

Prerequisite: Enrolled in the BISC pre-dental enhancement program.

Level of Study: Health Sciences Professional

Marquette Core Curriculum: NSM Crossing Boundaries

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%207157>)

BISC 7160 Foundations in Public Health (3 credits)

Exploration of select public health issues with an emphasis on dental health disparities. Service learning experiences are incorporated to further the student's integration of public health issues with the dental profession.

Prerequisite: Enrolled in the BISC pre-dental enhancement program.

Level of Study: Health Sciences Professional

Marquette Core Curriculum: NSM Expanding Our Horizons

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%207160>)

BISC 7180 Clinical Neuroanatomy (3 credits)

Fundamental neurocranial anatomical information essential to the practice of medicine. Students develop a 3-dimensional understanding of neurocranial structures, and their relationships, with an emphasis on critical thinking through clinical problem solving.

Prerequisite: PHAS major or cons. of instr.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%207180>)

BISC 7213 Clinical Biochemistry (4 credits)

Examines biochemistry of human cells. Examines the chemistry of amino acids, proteins, carbohydrates, lipids, and nucleic acids. Explores the metabolism and metabolic regulation of these molecules, as well as changes in disease states. When necessary, compares and contrasts human biochemistry with that of bacterial cells.

Prerequisite: General and organic chemistry and enrolled in the BISC pre-dental enhancement program. Consent required.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%207213>)

BISC 7215 Clinical Microbiology with Lab (4 credits)

Focuses on the general biology of bacterial, viral, fungal and parasitic pathogens of human medical importance and the response of the human host. Laboratory sessions reinforce content from lectures and introduce students to laboratory skills including isolation, cultivation, enumeration, and characterization of bacteria of human medical importance. Utilizes Brightfield microscopy. Specialized techniques include antibiotic susceptibility testing, anaerobic cultivation, biochemical tests and immunological assays.

Prerequisite: Enrolled in the BISC pre-dental enhancement program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%207215>)

BISC 7220 Medical Pharmacology (3 credits)

Fundamentals of human pharmacology and basic principles dictating drug actions within the human body, with emphasis on applications in general medicine. Focuses on the therapeutic actions and clinical applications of various drug classes. Topics include cellular mechanisms, physiological responses, adverse reactions, drug-drug interactions, and clinical indications, accompanied by discussion on the pathological conditions for which common therapeutic agents are used. Applications of pharmacology commonly encountered by physician assistants are presented and are reinforced through interactive clinically-correlated lectures presented by practicing physicians and physician assistants.

Prerequisite: PHAS major.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%207220>)

BISC 7230 Medical Anatomy (6 credits)

The study of human gross anatomy, including a cadaver dissection laboratory. Anatomy of the limbs, back, thorax, abdomen, pelvis, and head and neck is approached on a regional basis, with a special focus on fundamental neuroanatomical information in a clinical context. Lectures emphasize regional anatomical relationships and functional aspects of the systems and provide a guide to the dissections. The ultimate objective is to attain a detailed understanding of structure-function relationships in the human body that underlie the practice of medicine.

Prerequisite: PHAS major.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%207230>)

BISC 7235 Principles of Dental Gross Anatomy (3 credits)

Provides students with a foundation in human anatomy, with focus on regions most relevant to dental medicine. Emphasizes correlations between structure, function, and clinical application. Includes laboratory.

Prerequisite: Enrolled in the BISC pre-dental enhancement program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%207235>)

BISC 7410 Microbiology (4 credits)

Provides dental students with the foundational knowledge of infectious agents of human medical importance and how the body responds to those pathogens. Provides a general overview of microbiology including characteristics of microorganisms, bacterial genetics and metabolism. Studies methods to control the growth of these microorganisms, both within a human host (antimicrobial drugs), and in the environment (sterilization and disinfection; OSHA's Bloodborne Pathogen Standard). Explores the host immune response to infections. Students discuss the causative agents and pathogenesis of infectious diseases along with the diagnosis, prevention and treatment of these diseases. Addresses bacterial, viral, fungal and parasitic diseases of human clinical importance.

Prerequisite: School of Dentistry only.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%207410>)

BISC 7461 Comparative Health Politics and Policy (3 credits)

Explores through comparative analysis the ways in which different nations address the goals of equitable access, affordability and quality in health care. Considers the similarities and differences in health policy challenges facing rich and developing nations. Employs comparative analysis of different models of health care provisions and financing, and examines the underlying politics of health care systems and policies in different countries. Same as POSC 4461/5461.

Prerequisite: Cons. of dept. ch. Consent required.

Level of Study: Health Sciences Professional

Interdisciplinary Studies: Culture, Health and Illness, Peace Studies

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%207461>)

BISC 7514 Human Microanatomy (4 credits)

A study of the microscopic structure of cells, tissues and organs of the human body. Emphasizes structure-function relationships to build a foundation for physiology and pathology. Includes a laboratory to aid in the identification and understanding of the tissues and organs of the body using a virtual microscope. Incorporates case studies to help develop critical thinking and connect basic microanatomical knowledge to real-world applications.

Prerequisite: School of Dentistry only.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%207514>)

BISC 7515 Biomedical Systems 1 (3 credits)

Provides an introduction to human anatomy of the head and neck region. Topics include the skull, temporomandibular joint, muscles of mastication and facial expression and an overview of the orbital and cervical regions. Structural and functional relationships between the cranial nerves and central neuroanatomical pathways are presented along with selected clinical correlations. Begins to build the foundational knowledge of the biomedical systems that is necessary for dental students as they start patient rounds during the first semester.

Prerequisite: School of Dentistry.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%207515>)

BISC 7516 Biomedical Systems 2 (4 credits)

A human gross anatomy course for dental students that integrates lecture with a cadaver dissection laboratory. Follows the neurocranial anatomy course with expanded topics and detailed dissections of the head and neck regions. Lectures and dissections of the thorax, abdomen and pelvis, along with lectures on the upper and lower extremities are included. Part of a biomedical systems course sequence integrating anatomy, physiology, pathology, and dental clinical correlates. Additional lab fee applies.

Prerequisite: School of Dentistry only.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%207516>)

BISC 7517 Biomedical Systems 3 (4 credits)

Module 3 of a systems-based course integrating anatomy, physiology and pathology including dental clinical correlates.

Prerequisite: School of Dentistry only.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%207517>)

BISC 7518 Biomedical Systems 4 (4 credits)

Module 4 of a systems-based course integrating anatomy, physiology and pathology including dental clinical correlates.

Prerequisite: School of Dentistry only.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%207518>)

BISC 7520 Dental Pharmacology (4 credits)

Fundamentals of human pharmacology and basic principles dictating drug actions within the human body with emphasis on applications in dentistry. Focuses on the therapeutic actions and clinical applications of various drug classes. Topics include: cellular mechanisms, physiological responses, adverse reactions, drug-drug interactions, and clinical indications, accompanied by discussion on the pathological conditions for which common therapeutic agents are used. Applications of pharmacology commonly encountered by dentists are presented and are reinforced through interactive clinically correlated lectures presented by dental professionals.

Prerequisite: School of Dentistry only. Consent required.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%207520>)

BISC 7550 Remediation (0-6 credits)

Variable credits. Variable titles. 0 credit will be SNC/UNC grade assessment; 1-6 credits will be graded.

Prerequisite: Cons. of dept. ch. only. Consent required.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%207550>)

BISC 7931 Topics in Biomedical Sciences (1-3 credits)

Selected topics in biomedical sciences. Specific topics will be designated in the Schedule of Classes.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%207931>)

BISC 7995 Independent Study in Biomedical Sciences (1-6 credits)

Research on a selected topic under the direction of a faculty member of the Department of Biomedical Sciences. Can be taken for a maximum total of 6 credits, maximum of 3 credits can be applied towards BISC major. Consent required.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%207995>)

BISC 8003 Individual Development Plan (1 credits)

Guidance of students toward identifying their current interests to facilitate future career paths, as well as develop a graduate career plan based on necessary skills and expertise. Same as NRSC 8003; credit is not awarded for both.

Prerequisite: Cons. of instr. Consent required.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%208003>)

BISC 8004 Science Writing and Ethics 1 (1 credits)

An introduction of scientific writing skills necessary for a successful career in science. Same as NRSC 8004; credit is not awarded for both.

Prerequisite: BISC 8003 or NRSC 8003.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%208004>)

BISC 8005 Science Writing and Ethics 2 (1 credits)

Advanced writing skills necessary for grant writing. Same as NRSC 8005; credit is not awarded for both.

Prerequisite: BISC 8004 or NRSC 8004.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%208005>)

BISC 8096 First Year Lab Rotations (1 credits)

Introductory lab rotations for first-year graduate students based on mutual preferences of the student and faculty member. May include lab group meetings, literature search, bench work, presentation of findings and/or research plans to lab members. Same as NRSC 8096; credit is not awarded for both.

Prerequisite: Cons. of instr. Consent required.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%208096>)

BISC 8101 Biology of Cellular Signal Transduction (2 credits)

Focuses on the mechanisms by which cells detect and respond to extracellular signals including neurotransmitters, hormones and growth factors. Discusses fundamental principles and key examples of cellular signal processing. Centered on the discussion of review articles and key papers from primary literature. Consent required.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%208101>)

BISC 8931 Topics in Biomedical Sciences (1-3 credits)

Subject matter varies as determined by needs of neuroscience graduate students. May be repeated, as subject matter changes. Same as NRSC 8931; credit is not awarded for both.

Prerequisite: Cons. of instr. Consent required.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%208931>)

BISC 8953 Seminar in Neuroscience (1 credits)

Topics of current interest in neuroscience. Same as NRSC 8953; credit is not awarded for both.

Prerequisite: Cons. of instr. Consent required.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%208953>)

BISC 9002H Honors Student Study/Research Placeholder in Biomedical Sciences (0 credits)

Used to enroll a honors student who is not enrolled in the term, but is on campus for an educational experience other than academic credit, such as work in a lab or clinic. Used for tracking purposes only. SNC/UNC grade assessment.

Prerequisite: cons. of dpt. ch. Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=BISC%209002H>)

Exercise Physiology

EXPH 1001 Introduction to Exercise Science (1 credits)

Introduction to the basic principles of exercise physiology. Exposure to the various careers within exercise science. Additional topics of interest include research techniques, certification requirements and professional development.

Prerequisite: EXPH major; or cons. of instr.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%201001>)

EXPH 1010 Emergency Care, CPR and AED (1 credits)

An overview of principles and techniques of first aid, emergency care and cardiopulmonary resuscitation. Competency in skills leads to American Heart Association Health Care Provider CPR and first aid certification. Lecture/lab. Lab fee.

Prerequisite: EXPH major; or cons. of instr.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%201010>)

EXPH 1020 Personal Health and Wellness (1 credits)

Personal health and wellness and teaches students how to stay healthy across the life span by integrating aspects of wellness such as conscientious dietary decisions, behavioral and functional movement choices. Students develop an understanding of the various components of fitness and wellness in order to help them reach their health and fitness goals.

Prerequisite: EXPH major; or cons. of instr.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%201020>)

EXPH 1500 Functional Anatomy of Exercise (1 credits)

Provides a basic overview of performance enhancement from an anatomical approach. Large muscle groups are reviewed for origin, insertion and actions (open and closed chain) with classic and elite performance demonstrated and students performing the exercises.

Prerequisite: EXPH major and BISC 1035, which must be taken concurrently; or cons. of instr.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%201500>)

EXPH 2000 Principles of Leadership and Professional Practice 1 (1 credits)

Preparation for leadership, management, and successful participation as an exercise science professional across a variety of health, fitness, wellness, and research settings. Topics include qualities and components of effective leadership, mindfulness in the health sciences, cultural understanding and humility, effective interpersonal communication and teamwork and developing professional presence and effective personal behaviors for the workplace.

Prerequisite: EXPH major and EXPH 2045; or cons. of instr.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%202000>)

EXPH 2001 Principles of Leadership and Professional Practice 2 (1 credits)

Preparation for entry into the professional world of health, fitness, wellness and more. Develop the skills and knowledge to facilitate successful and efficient entry into your next steps as a working professional or graduate student. Topics include preparing a professional portfolio (career summary, resume, cover letters, interviews, transferrable skills, and accomplishments), professional communication, and managing and monitoring professional standing and presence.

Prerequisite: EXPH major and EXPH 3986, which may be taken concurrently; or cons. of instr.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%202001>)

EXPH 2045 Principles of Human Physiology (3 credits)

Students develop a fundamental understanding of the physiological processes in the human body. Covers the function of cells, tissues, organs and systems, and the communication, integration, and processes necessary to maintain the body's internal environment within a narrow range (homeostasis) even under extreme conditions. Where appropriate, use of pathophysiological examples to highlight the differences between normal and abnormal function (healthy and unhealthy biological systems). Focuses specifically on developing the student's understanding of the following physiological systems: skeletal, muscular, nervous, endocrine, cardiovascular, lymphatic, respiratory, digestive, urinary and reproductive.

Prerequisite: BISC 1035, or BISC 3135, or BISC 2015 and BISC 2016; and CHEM 1002.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%202045>)

EXPH 2046 Principles of Human Physiology Lab (1 credits)

Laboratory/discussion-based course which provides a detailed study and hands-on experiential learning of the physiologic processes in the human body. Lab fee.

Prerequisite: BISC 1035, or BISC 3135, or BISC 2015 and 2016; CHEM 1002; EXPH 2045, which may be taken concurrently.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%202046>)

EXPH 2106 Cognitive and Motor Learning (3 credits)

Lecture/lab. A study of the principles of human motor learning development from infancy through adulthood. Instructional emphasis is given to those factors which have implications for exercise and training. Course fulfills Theory Elective for the EXPH major for students who declared the major Fall 2019 or later. Lab fee.

Prerequisite: EXPH major; or cons. of instr.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%202106>)

EXPH 2110 Kinesiology/Biomechanics (4 credits)

Lecture/lab. Study of human motion emphasizing skeletal structure. Mechanical principles which influence human exercise are examined. Identification of the origin, insertion and function of major muscles is included along with surface anatomy.

Prerequisite: BISC 1035; or BISC 2015 and BISC 2016; and EXPH 1500 which all must be completed with a grade of C or better.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%202110>)

EXPH 2115 Exercise Physiology (3 credits)

Protein, carbohydrate and lipid metabolism in relation to energy production including anaerobic and oxidative pathways with an emphasis on exercise and health. A study of the effects of exercise on the major systems of the human body, including the cardiorespiratory and neuromuscular systems.

Prerequisite: BISC 1035 and EXPH 2045; or BISC 2015 and BISC 2016.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%202115>)

EXPH 2116 Exercise Physiology Laboratory (1 credits)

Provides an experiential overview of human exercise physiology. Topics include basic laboratory procedures and interpretation, bioenergetics and energy expenditure dynamics, lactate threshold, ergometers and power output, field and stress testing, mechanical efficiency, muscular strength assessment, cardiovascular dynamics, body composition and respiratory dynamics. Lab fee.

Prerequisite: BISC 1035, EXPH 2045 and EXPH 2046; or BISC 2015 and BISC 2016.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%202116>)

EXPH 2190 Scientific Principles of Strength and Conditioning (3 credits)

Research and applications of disciplines such as physiology and biomechanics within context of program design, exercise techniques, strength, power, speed and flexibility development, physical testing, and training adaptations. Lecture/Lab.

Prerequisite: BISC 2015 and BISC 2016; or EXPH 2045.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%202190>)

EXPH 2931 Topics in Exercise Physiology (1-4 credits)

Selected topics, not a part of the regular course work taught because of a special need, interest, or opportunity.

Prerequisite: Jr. stndg. and EXPH major; or cons. of instr.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%202931>)

EXPH 2931H Honors Topics in Exercise Physiology (1-4 credits)

Selected topics, not part of the regular course work taught because of a special need, interest or opportunity. As an Honors Program course, includes a more intensive research or project component. Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%202931H>)

EXPH 2987 Exercise Physiology Practicum - Work Period (0 credits)

Working period of a summer internship in an approved exercise science related field. Provides guided, hands-on experience to develop technical, professional, and interpersonal skills for careers in health and exercise science.

Prerequisite: EXPH major, EXPH 1010, EXPH 2110, EXPH 2115, EXPH 2190; and EXPH 2000. Consent required. Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%202987>)

EXPH 3000 Applied Elective in Exercise Physiology (1-3 credits)

Selected applied and studio topics, not a part of the regular course work taught because of a special need, interest or opportunity.

Prerequisite: Jr. stndg.; EXPH major; or cons. of instr.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%203000>)

EXPH 3010 Cardio Dance (1 credits)

Provides a new method for teaching cardiovascular fitness in a clinical/exercise setting. Utilizing the principles and techniques learned throughout the semester, students are required to develop and instruct a cardio dance fitness session. Fulfills the Applied Elective requirement in the EXPH major.

Prerequisite: Jr. stndg. and EXPH major.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%203010>)

EXPH 3015 CrossFit (2 credits)

CrossFit is designed as an introductory overview of the CrossFit methodology: the core principles, definitions, prescriptions, primary movement cues/techniques, dietary protocols and history/current state of the fitness movement. Fulfills the Applied Elective requirement in the EXPH major.

Prerequisite: Jr. stndg. and EXPH major.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%203015>)

EXPH 3020 Core Stabilization (1 credits)

Introduces the anatomy and function of the human body core musculature. Learn an evidence based approach to develop an integrated exercise plan to strengthen and stabilize the core. Integrate this knowledge into an appropriate treatment plan for a variety of special populations. Exercise modalities such as the physioball, foam roll, body blade, theraband, and Pilates are learned. Fulfills Applied Elective requirement in the EXPH major.

Prerequisite: Jr. stndg. and EXPH major.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%203020>)

EXPH 3025 Spinning (1 credits)

Spinning allows students to learn proper form, technique and exercise movements to be safe and successful while performing and teaching spinning for fitness instruction. Course fulfills the Applied Elective requirement in the EXPH major.

Prerequisite: Jr. stndg. and EXPH major.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%203025>)

EXPH 3040 Yoga (1 credits)

Provides the opportunity to gain a better understanding of the practice and benefits of yoga. Philosophy and history as well as traditional and modern aspects of yoga are covered. Various class styles are presented and explored. Fulfills the Applied Elective requirement in the EXPH major.

Prerequisite: Jr. stndg. and EXPH major.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%203040>)

EXPH 3050 Latin Dance Aerobics (1 credits)

An Introduction to basic and advanced Latin dance steps choreographed to appropriate music. Learn proper class format and structure to lead a safe and fun Latin Dance Aerobics class, including non-verbal cues, and appropriate modifications. Fulfills the Applied Elective requirement of the EXPH major.

Prerequisite: Jr. stndg. and EXPH major.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%203050>)

EXPH 3055 BARRE (1 credits)

Barre is a fitness program that blends the latest Exercise Science methods with the principles of the Lotte Berk Method of Barre delivering a fusion of ballet, pilates, yoga and strength training. Demonstration and return demonstration are the primary method of instruction from a certified Barre instructor. Fulfills the Applied Elective requirement in the EXPH major.

Prerequisite: Jr. stndg. and EXPH major.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%203055>)

EXPH 3060 Kickboxing F.I.T. (1 credits)

Learn proper class format, safety, technique and structure to develop and lead safe and effective kickboxing training routines. Fulfills the Applied Elective requirement in the EXPH major.

Prerequisite: Jr. stndg. and EXPH major.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%203060>)

EXPH 3065 Water Aerobics (1 credits)

Students utilize foundational fitness knowledge and current research to develop and lead water aerobics programs designed to meet a variety of fitness goals of flexibility, endurance and/or strengthening. Through active participation, students also learn to instruct participants on proper technique to be safe and successful while performing and teaching water aerobics. Course fulfills the Applied Elective requirement in the EXPH major.

Prerequisite: Jr. stndg. and EXPH major.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%203065>)

EXPH 3070 Latin Dance Aerobics + Toning (1 credits)

Introduces basic and advanced Latin dance steps choreographed to appropriate music. Learn proper class format and structure to lead a safe and fun Latin Dance Toning class, including proper cues, exercises and appropriate modifications. Fulfills the Applied Elective requirement in the EXPH major.

Prerequisite: Jr. stndg. and EXPH major.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%203070>)

EXPH 3080 Tai Chi (1 credits)

Learn the "Fifteen Important Transitions" (F.I.T.) of Tai Chi F.I.T. and adjunct exercises (qigong) for utilization in a variety of clinical settings. Study the principles and practice the postures of Tai Chi F.I.T., along with qigong exercises. Develop and lead safe and effective Tai Chi F.I.T. programs to improve an individual's physical strength, posture and alignment, balance, motor recruitment strategies and proprioception. Fulfills the Applied Elective requirement in the EXPH major.

Prerequisite: Jr. stndg. and EXPH major.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%203080>)

EXPH 3170 Administration in Exercise Science (2 credits)

Study of the strategies and considerations involved in the successful management of a fitness facility. Areas include program planning, budgeting, facility design and organization.

Prerequisite: EXPH 3986; EXPH major; or cons. of instr.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%203170>)

EXPH 3180 Exercise Testing and Prescription (3 credits)

Practical experience in fitness testing/assessment, program design and instruction in a wide variety of fitness related programs. Emphasis on test protocols for evaluating health related components of physical fitness. Lecture/lab.

Prerequisite: EXPH 2115; EXPH major; or cons. of instr.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%203180>)

EXPH 3200 Clinical Exercise Physiology (3 credits)

Provides theory and practical experience in clinical exercise physiology. Content includes Electrocardiography, Arrhythmia Recognition, Basic Clinical Assessment, Exercise Testing, Health and Fitness Assessment, Foundations of Clinical Exercise Prescription, and Disease Specific Exercise Recommendations. Students are prepared to sit for certification exams in the American College of Sports Medicine, American Society of Exercise Physiology and National Athletic Trainers' Association.

Prerequisite: BISC 1035; or BISC 2015 and BISC 2016: EXPH 2190; and EXPH 3180.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%203200>)

EXPH 3500 Health Behavior (3 credits)

Presents health behavior theories and applications from the individual to environmental level that characterize the diverse practice of health behavior change, public health and health promotion. Designed to provide the opportunity to explore, apply and critique the theoretical foundations of health promotion and behavior.

Prerequisite: EXPH; PBHE minor; or cons. of instr.

Level of Study: Undergraduate

Marquette Core Curriculum: NSM Individuals & Communities

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%203500>)

EXPH 3600 Theoretical Elective in Exercise Physiology (1-3 credits)

Selected theoretical lecture, lab, discussion and community engaged courses. Not a part of the regular course work taught because of a special need, interest or opportunity.

Prerequisite: Jr. stndg.; EXPH major; or cons. of instr.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%203600>)

EXPH 3610 Psychology of Injury Recovery (1 credits)

Mental strategies are valuable tools athletes and nonathletes need to recover from injury and rebound stronger. Discuss mental skills and psychological tools applicable for healthcare professionals, including athletic trainers and physical therapists. Fulfills the Theory Elective in the EXPH major.

Prerequisite: Jr. stndg. and EXPH major.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%203610>)

EXPH 3615 Introduction to Research in Biomechanics (2 credits)

Exposes students to a wide variety of biomechanical research methods, that are used to study human movement, through inquiry-based learning projects. In addition, general experiences related to the collection, analysis and presentation of scientific data are emphasized. Fulfills the Theory Elective requirement in the EXPH major.

Prerequisite: Jr. stndg. and EXPH major.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%203615>)

EXPH 3620 Clinical Exercise Testing (1 credits)

Introduces formal clinical exercise testing in patients with/without chronic diseases. Provides exposure to a wide variety of physiologic testing modalities and their utility in a variety of clinical situations. As well as exposure to research techniques and grant formation.

Prerequisite: Jr. stndg. and EXPH major.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%203620>)

EXPH 3625 Exercise is Medicine (2 credits)

Exercise is Medicine® On Campus is a project-based, service-learning course. Immersion in to the concept of physical activity (PA) as a therapeutic modality to prevent and treat chronic disease and discovery that exercise and PA are a cost-effective intervention. Additionally, learn to appreciate the concept of and implications of health disparities as they relate to exercise, physical activity and health. Students are challenged to think creatively to: 1) produce education materials, 2) develop an e-media informational presentation, 3) host an event themed around EIM and 4) propose a change in policy and/or culture. Marquette University and the surrounding Near West Side neighborhoods are the target communities. Fulfills the Theory Elective in the EXPH major.

Prerequisite: Jr. stndg. and EXPH major.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%203625>)

EXPH 3635 Current Issues in Nutrition (1 credits)

An in-depth examination of contemporary nutrition issues that are currently discussed in scientific circles. The influence of policy and research on the understanding of nutrition and health outcomes. Controversies in nutrition and cultural aspects of food are also covered through weekly discussions.

Prerequisite: EXPH major; Jr. Stndg.; and EXPH 4189.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%203635>)

EXPH 3640 Pediatric Cardiac Rehabilitation (1 credits)

Provides theory and practical experience in pediatric cardiac rehabilitation. Topics include cardiopulmonary physiology, clinical assessment, exercise testing for diagnosis as well as for programing, foundations of exercise prescription in patients with cardiac diseases, basic pharmacology and a foundation in the categorization and management of children with congenital heart defects. Assists in the preparation of certification exams in the following professional organizations: American College of Sports Medicine (ACSM); American Society of Exercise Physiology (ASEP); National Athletic Trainers' Association (NATA).

Prerequisite: EXPH major; EXPH 3180 and EXPH 3200, which may be taken concurrently.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%203640>)

EXPH 3645 Health Science in The News (1 credits)

Keep up with the ever-changing health science news. Exposes students to a wide range of topics. Weekly coverage of useful skills such as strategies for staying up to date with new information, scrutinizing sources and understanding trade-offs, are determined as they happen (in the news).

Prerequisite: EXPH major and Jr. stndg.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%203645>)

EXPH 3650 ACSM Exercise Physiologist Certification (3 credits)

Provides an overview of the American College of Sports Medicine (ACSM) certification process for the Certified Exercise Physiologist (EP-C). Includes material for the Certified Personal Trainer (CPT) exam. Reviews and reinforces concepts in the various domains of the exam. Topics may include form intake, screening, assessments, programming, marketing, business concepts and behavior modification. Math competency is emphasized. Course fulfills the Theory Elective in the EXPH major.

Prerequisite: Jr. stndg. and EXPH major.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%203650>)

EXPH 3655 Fundamentals of Athletic Training (3 credits)

Basic concepts of anatomy, mechanisms of injury, and the administration of athletic training will be taught. Students will be able to demonstrate a basic mastery of athletic injuries of all body parts. Students will also obtain basic knowledge of the NATA code of ethics and BOC standards of practice for athletic trainers (ATs). Topics include also general illnesses, conditions, drugs, nutrition, and disabilities providing an overall introductory coverage of sports medicine topics. Included in this course is a field experience within the athletic training room which will provide students the ability to observe the didactic course content in clinical application.

Prerequisite: EXPH DRAT major and cons. of instr Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%203655>)

EXPH 3660 Becoming a Clinical Exercise Physiologist (1 credits)

Explores the profession of clinical exercise physiology (CEP) in the hospital setting. Exposes students to the day-to-day requirements of the profession. Concepts include preparation for professional certification; governing bodies and scope of practice (ACSM, AHA, ACC, ASEP); interprofessional education and communication standards; and Interpretation and presentation of critical results. Additionally, students are exposed to clinical scenarios that require patient counseling, education and documentation.

Prerequisite: EXPH major, EXPH 2115 and EXPH 3180.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%203660>)

EXPH 3670 Introduction to Analytics in Sports: Using Data to Improve Performance (2 credits)

Introduction to statistical methodologies used to study and interpret data collected in the physical therapy clinic, exercise performance laboratory or athletic program. Fulfills the Theory Elective in the EXPH major.

Prerequisite: Jr. stndg. and EXPH major.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%203670>)

EXPH 3680 Psychological Aspects of Sport & Exercise (2 credits)

Designed to present the basic psychological aspects of sport, exercise and rehabilitation. Students demonstrate their knowledge of sport and exercise psychology through a variety of activities emphasizing real-life application in an effort to enhance evidence-based practice in areas including: psychological influences on individual performance including motivation, arousal, stress and anxiety; situational influences on performance including feedback, reinforcement and punishment; group dynamics affecting performance (e.g., cohesion, leadership and communication); performance enhancement through Psychological Skills Training (PST). Fulfills the Theory Elective in the EXPH major.

Prerequisite: Jr. stndg. and EXPH major.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%203680>)

EXPH 3690 Environmental Physiology (2 credits)

Systems based physiological responses and adaptations to acute and chronic environmental stress. Considerations are given to rest and exercise conditions. Depending on class interest, topics could include spaceflight and microgravity, hyperbaric environments, hypoxia, high altitude, heat, cold, as well as exercise under extreme conditions such as expeditionary climbing. Application to chronic disease is emphasized. Fulfills the Theory Elective in the EXPH major.

Prerequisite: Jr. stdng. and EXPH major.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%203690>)

EXPH 3986 Exercise Physiology Practicum 1 (2 credits)

Application of Exercise Science principles through a guided learning experience in health, fitness, wellness, performance, or research in clinical and community settings. Supervised development of professional skills and career exploration. May be dependent on space. Current CPR and First Aid certifications. S/U grade assessment.

Prerequisite: Jr. stdng.; EXPH major, EXPH 1010, EXPH 2110, EXPH 2115, EXPH 2190; and EXPH 2000, which may be taken concurrently.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%203986>)

EXPH 3987 Exercise Physiology Practicum - Grading Period (2 credits)

Grading period of the EXPH 2987 summer internship. S/U Grade assessment.

Prerequisite: EXPH 2987.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%203987>)

EXPH 4015 Advanced Practice for the Exercise Physiologist (2 credits)

Knowledge in behavior modification and practice management, along with prior course work, is incorporated for working with individuals in adopting and maintaining healthy lifestyle behaviors. Includes performing pre-exercise health risk assessments, conducting physical fitness assessments and developing exercise prescriptions and programs for individuals with medically-controlled diseases. Fulfills the Applied Elective in the EXPH major.

Prerequisite: EXPH major and Sr. stdng.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%204015>)

EXPH 4020 Clinical Case Management in Exercise Science (3 credits)

Study of the pathophysiology, as well as the patient and society burden of "clinical populations" and the relevant concerns that may require/result in exercise/treatment strategy modifications. The ability of the student to communicate with and advocate for these "clinical populations" is emphasized.

Prerequisite: EXPH 2115 with a grade of C or better.

Level of Study: Undergraduate

Marquette Core Curriculum: Writing Intensive

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%204020>)

EXPH 4187 Clinical Exercise Physiology for Special Populations (3 credits)

Studies program modifications and techniques for various populations from a system-based approach that includes, but is not limited to, diseases of the cardiovascular, pulmonary, endocrine, neurologic and musculoskeletal systems. May also include exercise prescription throughout the life span, within elite athletes, and in those with psychological disorders. Considers the socioeconomic burden of diseases.

Prerequisite: EXPH major and EXPH 2115, EXPH 3180, and EXPH 3200; or cons. of instr.

Level of Study: Undergraduate

Marquette Core Curriculum: NSM Crossing Boundaries, NSM Individuals & Communities

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%204187>)

EXPH 4189 Nutrition and Exercise Performance (4 credits)

Studies comprehensive human nutrition. Covers nutrition principles and guidelines with historical and economic context for the evolution of whole to ultra-processed food consumption. Discusses carbohydrate, fat, protein, vitamin and mineral requirements and their role and interrelationships in nutrition and metabolism. Examines dietary assessment, public health and life cycle nutrition as it relates to health and disease. Addresses broader topics regarding food systems and applied issues. Covers the role of nutrition in exercise training, athletic training and performance, including ergogenic aids and eating disorders.

Prerequisite: EXPH 2115.

Level of Study: Undergraduate

Marquette Core Curriculum: NSM Basic Needs & Justice

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%204189>)

EXPH 4190 Advanced Strength & Conditioning (3 credits)

Covers advanced strength and conditioning topics including: plyometrics, speed and agility development, testing, program design, linear and non-linear periodization and potentiation phenomenon.

Prerequisite: EXPH 2115, EXPH 2190 and cons. of instr.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%204190>)

EXPH 4192 Advanced Exercise Physiology (3 credits)

Advanced course in the study of the body's response to physical activity. Focuses on the critical evaluation of the scientific literature with discussion of the standard techniques utilized in exercise physiology research.

Prerequisite: Sr. stdng.; EXPH major; and EXPH 2115, EXPH 3180, BISC 1035 (or BISC 2015 and BISC 2016); EXPH 4195, which must be taken concurrently; or cons. of instr.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%204192>)

EXPH 4195 Advanced Exercise Physiology Laboratory (1 credits)

Presents advanced techniques used in exercise physiology to study the human body's response and adaptations to exercise. Focuses on laboratory techniques and skills that are standard, but cutting edge in exercise physiology research and form the basis of knowledge in exercise physiology. Laboratory techniques include those used to study and quantify neuromuscular function, metabolic responses and cardiovascular adjustments to acute and chronic exercise. Students gain practical experience in the scientific process and come to understand and perform these techniques. Lab fee.

Prerequisite: Sr. stdng.; EXPH major; and EXPH 2115, EXPH 3180, BISC 1035 (or BISC 2015 and BISC 2016); EXPH 4192, which must be taken concurrently; or cons. of instr.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%204195>)

EXPH 4931 Topics In Exercise Physiology (1-3 credits)

Selected topics in exercise physiology. Specific topics will be designated in the Schedule of Classes.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%204931>)

EXPH 4956H Honors Introduction to Research in Exercise Physiology (1 credits)

Introduction to research and application of research under the direction of a faculty adviser. As an Honors Program course, includes a more intensive research or project component. Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%204956H>)

EXPH 4957H Honors Advanced Research in Exercise Physiology (1 credits)

Under the direction of a faculty adviser, students participate in various aspects of the research process which may include literature review, design/proposal, data collection, analysis/interpretation and dissemination of results. As an Honors Program course, includes a more intensive research or project component.

Prerequisite: Admission to EXPH Disciplinary Honors Program. Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%204957H>)

EXPH 4960H Honors Research Seminar in Exercise Physiology (1 credits)

Scholarly presentations by visiting faculty and clinicians, resident faculty and graduate students on current topics related to exercise physiology. As an Honors Program course, includes a more intensive research or project component.

Prerequisite: Admission to EXPH Disciplinary Honors Program. Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%204960H>)

EXPH 4986 Exercise Physiology Practicum 2 (6-15 credits)

Work experience and application of Exercise Science principles through a full-time, immersive learning experience in an approved health, fitness, wellness, performance, or research clinical or community setting. Supervised development of leadership, management and professional skills and early career development. May be dependent on space. Current CPR and First Aid certifications. S/U grade assessment.

Prerequisite: Sr. stdng; EXPH major; consent of Program Coordinator; and satisfactory completion of all EXPH major course work including EXPH 3986. Consent required.

Level of Study: Undergraduate

Marquette Core Curriculum: Engage Social Systems & Values 2

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%204986>)

EXPH 4995 Independent Study in Exercise Physiology (1-4 credits)

Faculty-supervised, independent study/research of a specific area or topic in Exercise Physiology.

Prerequisite: Cons. of instr. Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%204995>)

EXPH 5015 Advanced Practice for the Exercise Physiologist (2 credits)

Knowledge in behavior modification and practice management, along with prior course work, is incorporated for working with individuals in adopting and maintaining healthy lifestyle behaviors. Includes performing pre-exercise health risk assessments, conducting physical fitness assessments and developing exercise prescriptions and programs for individuals with medically-controlled diseases. Fulfills the Applied Elective in the EXPH major.

Prerequisite: Admitted to the graduate EXRS program.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%205015>)

EXPH 5187 Clinical Exercise Physiology for Special Populations (3 credits)

Studies program modifications and techniques for various populations from a system-based approach that includes, but is not limited to, diseases of the cardiovascular, pulmonary, endocrine, neurologic and musculoskeletal systems. May also include exercise prescription throughout the life span, within elite athletes, and in those with psychological disorders. Considers the socioeconomic burden of diseases.

Prerequisite: Cons. of dept. ch.

Level of Study: Graduate

Marquette Core Curriculum: NSM Crossing Boundaries, NSM Individuals & Communities

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%205187>)

EXPH 5192 Advanced Exercise Physiology (3 credits)

Advanced course in the study of the body's response to physical activity. Focuses on the critical evaluation of the scientific literature with discussion of the standard techniques utilized in exercise physiology research.

Prerequisite: EXPH 5195, which must be taken concurrently; enrolled in EXRS accelerated degree program; or cons. of instr.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%205192>)

EXPH 5195 Advanced Exercise Physiology Laboratory (1 credits)

Presents advanced techniques used in exercise physiology to study the human body's response and adaptations to exercise. Focuses on laboratory techniques and skills that are standard, but cutting edge in exercise physiology research and form the basis of knowledge in exercise physiology. Laboratory techniques include those used to study and quantify neuromuscular function, metabolic responses and cardiovascular adjustments to acute and chronic exercise. Students gain practical experience in the scientific process and come to understand and perform these techniques. Lab fee.

Prerequisite: EXPH 5192, which must be taken concurrently; enrolled in EXRS accelerated degree program; or cons. of instr.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%205195>)

EXPH 7140 Clinical Human Physiology (4 credits)

Designed to help students develop a deeper understanding of human physiology from the perspective of clinical applications related to the profession of physical therapy. Reviews basic knowledge of anatomy, physiology and physics. Students develop the ability to integrate the individual systems to the whole functioning human state. Prepares students for future course work in pharmacology, pathophysiology and exercise physiology as it relates to clinical practice.

Prerequisite: PHTH major; and concurrent enrollment in BISC 7130.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%207140>)

EXPH 7189 Nutrition and Exercise Performance (4 credits)

Studies comprehensive human nutrition. Covers nutrition principles and guidelines with historical and economic context for the evolution of whole to ultra-processed food consumption. Discusses carbohydrate, fat, protein, vitamin and mineral requirements and their role and interrelationships in nutrition and metabolism. Examines dietary assessment, public health and life cycle nutrition as it relates to health and disease. Addresses broader topics regarding food systems and applied issues. Covers the role of nutrition in exercise training, athletic training and performance, including ergogenic aids and eating disorders.

Prerequisite: Enrolled in MATR program.

Level of Study: Health Sciences Professional

Marquette Core Curriculum: NSM Basic Needs & Justice

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%207189>)

EXPH 9002H Honors Student Study/Research Placeholder in Exercise Physiology (0 credits)

Used to enroll a honors student who is not enrolled in the term, but is on campus for an educational experience other than academic credit, such as work in a lab or clinic. Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=EXPH%209002H>)

IPED**IPED 9705 Interprofessional Education Communication (0 credits)**

Designed to provide participants with the opportunity to learn and practice skills in interprofessional practice to aid them in the health care industry. Provides practice in interprofessional communication on a health care team. S/U grade assessment.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=IPED%209705>)

IPED 9710 Interprofessional Education Values and Ethics (0 credits)

Designed to provide participants with the opportunity to learn and practice skills in interprofessional practice to aid them in the health care industry.

Provides practice in interprofessional values and ethics on a health care team. S/U grade assessment.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=IPED%209710>)

IPED 9715 Interprofessional Education Teams and Teamwork (0 credits)

Designed to provide participants with the opportunity to learn and practice skills in interprofessional practice to aid them in the health care industry.

Provide practice in interprofessional teams and teamwork on a health care team. S/U grade assessment.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=IPED%209715>)

IPED 9720 Interprofessional Education Roles and Responsibilities (0 credits)

Designed to provide participants with the opportunity to learn and practice skills in interprofessional practice to aid them in the health care industry.

Provides practice in interprofessional roles and responsibilities on a health care team. S/U grade assessment.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=IPED%209720>)

IPED 9730 Interprofessional Education Special Topics (0 credits)

Designed to provide participants with the opportunity to learn and practice skills in interprofessional practice to aid them in the health care industry.

Topics vary. S/U grade assessment.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=IPED%209730>)

Medical Laboratory Science

MLSC 1001 Introduction to Medical Laboratory Methods (1 credits)

Fundamental concepts in laboratory analysis and data correlation. Topics limited to specific disease entities. Laboratory exercises include certain aspects of clinical chemistry, clinical hematology and clinical microbiology. (Saturdays).

Prerequisite: Enrolled in MLSC Young Scholar Program.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%201001>)

MLSC 1100 Guided Study in Medical Laboratory Science (0-2 credits)

Analysis of selected topics under faculty supervision. Primarily for undergraduate students who wish to enhance their knowledge in selected disciplines through guided study. 0 credit is SNC/UNC grade assessment; 1-2 credits is graded.

Prerequisite: MLSC major; or cons. of dept. ch.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%201100>)

MLSC 1200 Introductory and Practical Medical Laboratory Science (1 credits)

Introduction to Medical Laboratory Science and the areas of practice within the discipline. Includes hands-on laboratory sessions and guest lecturers who are practicing experts in various fields of the discipline.

Prerequisite: MLSC major.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%201200>)

MLSC 2050 Forensic Science (3 credits)

An introduction to the principles of forensic science. An overview of criminal law, the crime scene, evidence collection and processing, forensic medicine (pathology) drugs and toxins, firearms, questioned documents, trace evidence, fingerprints and DNA as evidence. Emphasis on the investigatory role of the forensic scientist. Laboratory sessions reinforce information from lectures and provide hands-on experiences, including homicide scene investigation techniques, molecular biology procedures.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%202050>)

MLSC 2060 Public Health (3 credits)

An exploration and overview of public health medicine and its contribution to prevention and control of disease. Provides familiarization with epidemiology surveillance and investigation methods, including statistical tools. Included is an introduction to the following components of public health medicine: communicable and non-communicable disease diagnosis and monitoring, environmental and foodborne health concerns, social and behavioral health issues, community health services, and the bioterrorism response network.

Prerequisite: Soph stndg.

Level of Study: Undergraduate

Marquette Core Curriculum: NSM Basic Needs & Justice

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%202060>)

MLSC 2200 Concepts in Medical Laboratory Science (3 credits)

Introduction to hospital medical laboratory testing in the areas of hematology, clinical chemistry, urinalysis, immunology, microbiology and blood bank. Students learn to analyze patient specimens, interpret patient results and correlate these results with conditions such as anemia, diabetes mellitus, metabolic deficiencies, transfusion reactions and infectious diseases. Weekly laboratory exercises reinforce lecture material.

Prerequisite: BIOL 1001, CHEM 1001 and MLSC major; or cons. of dept. ch.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%202200>)

MLSC 4124 Medical Microbiology 1 (4 credits)

Emphasis on the theoretical foundations and methods employed in a medical microbiology laboratory. Topics include: 1) structure (including microscopic techniques), cultivation, selection and differentiation of medically-important microbes; 2) control of microbes (disinfection/antiseptics/sterilization, human immunology, antimicrobial agents); 3) Gram-positive bacteria; 4) obligate intracellular bacteria; 5) spirochetes and curved bacteria; 6) fastidious bacteria (including anaerobic bacteria); 7) acid-fast bacilli; and 8) introductory virology. Taxonomy, epidemiology, pathogenicity and treatment of selected microbes are explored. Weekly laboratory sessions reinforce and augment lecture topics, as well as introduce students to isolation, examination and identification of medically-significant bacteria. Lab fee.

Prerequisite: MLSC major and biochemistry course, which may be taken concurrently.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%204124>)

MLSC 4127 Medical Microbiology 2 (4 credits)

Continuation of concepts presented in MLSC 4124/7124. Topics include: 1) enteric Gram-negative bacilli; 2) non-glucose-fermentative Gram-negative bacilli; 3) medical mycology; 4) medical parasitology; and 5) medical microbiology review (including specimen processing) using a human organ system approach. Taxonomy epidemiology, pathogenicity and treatment of selected microbes are explored. Weekly laboratory sessions reinforce and augment lecture topics, as well as further examine the isolation and identification/detection of medically-significant bacteria, fungi and parasites. Students recognize potential bacterial pathogens in culture settings versus commensal organisms and correlate findings to medical scenarios. Lab fee.

Prerequisite: MLSC major and MLSC 4124.

Level of Study: Undergraduate

Marquette Core Curriculum: NSM Cgntn, Lang, Mmry/Intlgnc, NSM Expanding Our Horizons

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%204127>)

MLSC 4163 Clinical Chemistry and Concepts 1 (4 credits)

Emphasis on the analysis of macromolecules (nucleic acids, lipids, proteins and carbohydrates) in a clinical setting for diagnostic purposes. Lecture and weekly laboratory sessions explore 1) diagnostic molecular testing including PCR and bioinformatics; 2) regulation of lipids, proteins and carbohydrates in healthy versus diseased patients; 3) diagnostic chemistry methodologies; and 4) clinical correlation. Further medical laboratory topics include quality control, quality assurance and specimen collection.

Prerequisite: MLSC major and a course in biochemistry, which can be taken concurrently (BIOL 3101, BISC 2070 or BISC 3213).

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%204163>)

MLSC 4173 Clinical Chemistry and Concepts 2 (4 credits)

Continuation of concepts presented in MLSC 4163/7163. Emphasis on medical laboratory instrumentation and techniques, and the chemical composition of body fluids. Specific topics of lecture and weekly laboratory include blood pH regulation; electrolytes; hormones; clinical enzymes; therapeutic drugs; drugs of abuse; vitamins; metals; and renal, liver, cardiac and pancreatic function. Further emphasis placed on patient testing and disease correlation.

Prerequisite: MLSC major and MLSC 4163.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%204173>)

MLSC 4174 Clinical Hematology 1 (4 credits)

Study of blood cells, blood forming organs and blood cell diseases with emphasis on hematopoiesis, blood cell morphology, blood cell function and pathophysiology. Lecture and weekly laboratory sessions explore identification of blood cells, routine hematology testing, hematology instrumentation, identification of blood parasites and clinical correlation.

Prerequisite: MLSC major and biochemistry course. With cons. of dept. ch., non-majors are required to complete an online biochemistry module.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%204174>)

MLSC 4180 Concepts in Clinical Education Methods and Practicum (2 credits)

Educational concepts especially appropriate to instruction in a clinical setting using clinical materials. Concepts discussed include: writing learning objectives, learning styles, testing and evaluation methods and use of audio-visuals.

Prerequisite: MLSC major and MLSC 4173.

Level of Study: Undergraduate

Marquette Core Curriculum: Engage Social Systms & Values 2, Writing Intensive

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%204180>)

MLSC 4181 Modern Management Concepts for the Medical Laboratory and Practicum (2 credits)

Comparison of management theories and styles for effective leadership. Principles and methods of communication essential to the delivery of quality health care. Strategic financial planning ensuring cost effectiveness in the diagnostic laboratory. Statistical analysis comparing alternative methodologies for selection of reliable laboratory procedures. Selected projects relating managerial practices to clinical laboratory organization and use of laboratory data systems for health care delivery.

Prerequisite: MLSC major and MLSC 4173.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%204181>)

MLSC 4183 Clinical Chemistry and Practicum (6 credits)

The chemical constituents of blood and other body fluids in health and disease. Principles of the methods used in qualitative and quantitative determination of these constituents. Treatment of the theoretical aspects of instrumentation used in these determinations.

Prerequisite: MLSC major and MLSC 4173.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%204183>)

MLSC 4184 Clinical Hematology 2 and Practicum (4 credits)

Quantitative and qualitative study of blood, bone marrow and body fluid cells and alterations present in disease. Principles of procedures used. Methods of obtaining and preserving blood specimens with consideration of the theory and practice of aseptic technique.

Prerequisite: MLSC major and MLSC 4173.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%204184>)

MLSC 4185 Clinical Hemostasis and Practicum (3 credits)

The components in the blood related to the hemostatic mechanisms, the principles of the procedures involved and their relationship to the diagnosis and treatment of disease.

Prerequisite: MLSC major and MLSC 4173.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%204185>)

MLSC 4186 Clinical Immunohematology and Practicum (6 credits)

Therapeutic and diagnostic aspects of immunohematology. Aspects of blood transfusion and of methods used in preservation and selection of properly matched blood for transfusion. Lab fee.

Prerequisite: MLSC major and MLSC 4173.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%204186>)

MLSC 4187 Clinical Immunology and Practicum (2 credits)

The diagnostic procedures used to determine immune system status and diagnosing immunodeficiency, autoimmunity and immunoproliferative diseases. The use of immunoassays to diagnose bacterial and viral infections and malignancies. Basic immunology is reviewed.

Prerequisite: MLSC major and MLSC 4173.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%204187>)

MLSC 4188 Clinical Microbiology and Practicum (6 credits)

Advanced study of pathogenic and normal flora microorganisms having medical importance. Includes methods for obtaining and handling specimens for culture as well as principles of current instrumentation. Identification protocol include cultural, morphological, biochemical, immunological, and molecular characteristics. Examines pathophysiology of infectious diseases caused by bacteria, fungi, parasites and viruses.

Prerequisite: MLSC major and MLSC 4124, MLSC 4127 and MLSC 4173.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%204188>)

MLSC 4189 Clinical Urinology and Practicum (2 credits)

Physical, chemical and microscopic study of urine with emphasis on the changes exhibited in disease with related physiology.

Prerequisite: MLSC major and MLSC 4173.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%204189>)

MLSC 4931 Topics in Medical Laboratory Science (1-4 credits)

Selected topics in medical laboratory science. Specific topics determined each term.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%204931>)

MLSC 4995 Independent Study in Medical Laboratory Studies (1-4 credits)

Faculty-supervised, independent study/research of a specific area or topic in Medical Lab Science.

Prerequisite: Cons. of dept. ch. Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%204995>)

MLSC 7124 Medical Microbiology 1 (4 credits)

Emphasis on the theoretical foundations and methods employed in a medical microbiology laboratory. Topics include: 1) structure (including microscopic techniques), cultivation, selection and differentiation of medically-important microbes; 2) control of microbes (disinfection/antiseptics/sterilization, human immunology, antimicrobial agents); 3) Gram-positive bacteria; 4) obligate intracellular bacteria; 5) spirochetes and curved bacteria; 6) fastidious bacteria (including anaerobic bacteria); 7) acid-fast bacilli; and 8) introductory virology. Taxonomy, epidemiology, pathogenicity and treatment of selected microbes are explored. Weekly laboratory sessions reinforce and augment lecture topics, as well as introduce students to isolation, examination and identification of medically-significant bacteria. Lab fee.

Prerequisite: Admitted to MLSC certificate program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%207124>)

MLSC 7127 Medical Microbiology 2 (4 credits)

Continuation of concepts presented in MLSC 4124/7124. Topics include: 1) enteric Gram-negative bacilli; 2) non-glucose-fermentative Gram-negative bacilli; 3) medical mycology; 4) medical parasitology; and 5) medical microbiology review (including specimen processing) using a human organ system approach. Taxonomy epidemiology, pathogenicity and treatment of selected microbes are explored. Weekly laboratory sessions reinforce and augment lecture topics, as well as further examine the isolation and identification/detection of medically-significant bacteria, fungi and parasites. Students recognize potential bacterial pathogens in culture settings versus commensal organisms and correlate findings to medical scenarios. Lab fee.

Prerequisite: Admitted to MLSC certificate program and MLSC 7124.

Level of Study: Health Sciences Professional

Marquette Core Curriculum: NSM Cgntn, Lang, Mmry/Intlgnc, NSM Expanding Our Horizons

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%207127>)

MLSC 7163 Clinical Chemistry and Concepts 1 (4 credits)

Emphasis on the analysis of macromolecules (nucleic acids, lipids, proteins and carbohydrates) in a clinical setting for diagnostic purposes. Lecture and weekly laboratory sessions explore 1) diagnostic molecular testing including PCR and bioinformatics; 2) regulation of lipids, proteins and carbohydrates in healthy versus diseased patients; 3) diagnostic chemistry methodologies; and 4) clinical correlation. Further medical laboratory topics include quality control, quality assurance and specimen collection.

Prerequisite: Admitted to the MLSC certificate program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%207163>)

MLSC 7173 Clinical Chemistry and Concepts 2 (4 credits)

Continuation of concepts presented in MLSC 4163/7163. Emphasis on medical laboratory instrumentation and techniques, and the chemical composition of body fluids. Specific topics of lecture and weekly laboratory include blood pH regulation; electrolytes; hormones; clinical enzymes; therapeutic drugs; drugs of abuse; vitamins; metals; and renal, liver, cardiac and pancreatic function. Further emphasis placed on patient testing and disease correlation.

Prerequisite: Admitted to the MLSC certificate program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%207173>)

MLSC 7174 Clinical Hematology 1 (4 credits)

Study of blood cells, blood forming organs and blood cell diseases with emphasis on hematopoiesis, blood cell morphology, blood cell function and pathophysiology. Lecture and weekly laboratory sessions explore identification of blood cells, routine hematology testing, hematology instrumentation, identification of blood parasites and clinical correlation.

Prerequisite: Admitted to the MLSC certificate program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%207174>)

MLSC 7180 Concepts in Clinical Education Methods and Practicum (2 credits)

Educational concepts especially appropriate to instruction in a clinical setting using clinical materials. Concepts discussed include: writing learning objectives, learning styles, testing and evaluation methods and use of audio-visuals.

Prerequisite: Admitted to MLSC certificate program; MLSC 7173.

Level of Study: Health Sciences Professional

Marquette Core Curriculum: Engage Social Systms & Values 2, Writing Intensive

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%207180>)

MLSC 7181 Modern Management Concepts for the Medical Laboratory and Practicum (2 credits)

Comparison of management theories and styles for effective leadership. Principles and methods of communication essential to the delivery of quality health care. Strategic financial planning ensuring cost effectiveness in the diagnostic laboratory. Statistical analysis comparing alternative methodologies for selection of reliable laboratory procedures. Selected projects relating managerial practices to clinical laboratory organization and use of laboratory data systems for health care delivery.

Prerequisite: Admitted to the MLSC certificate program; MLSC 7173.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%207181>)

MLSC 7183 Clinical Chemistry and Practicum (6 credits)

The chemical constituents of blood and other body fluids in health and disease. Principles of the methods used in qualitative and quantitative determination of these constituents. Treatment of the theoretical aspects of instrumentation used in these determinations.

Prerequisite: Admitted to the MLSC certificate program; MLSC 7173.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%207183>)

MLSC 7184 Clinical Hematology 2 and Practicum (4 credits)

Quantitative and qualitative study of blood, bone marrow and body fluid cells and alterations present in disease. Principles of procedures used. Methods of obtaining and preserving blood specimens with consideration of the theory and practice of aseptic technique.

Prerequisite: Admitted to the MLSC certificate program; MLSC 7173.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%207184>)

MLSC 7185 Clinical Hemostasis and Practicum (3 credits)

The components in the blood related to the hemostatic mechanisms, the principles of the procedures involved and their relationship to the diagnosis and treatment of disease.

Prerequisite: Admitted to the MLSC certificate program; MLSC 7173.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%207185>)

MLSC 7186 Clinical Immunohematology and Practicum (6 credits)

Therapeutic and diagnostic aspects of immunohematology. Aspects of blood transfusion and of methods used in preservation and selection of properly matched blood for transfusion. Lab fee.

Prerequisite: Admitted to MLSC certificate program; MLSC 7173.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%207186>)

MLSC 7187 Clinical Immunology and Practicum (2 credits)

The diagnostic procedures used to determine immune system status and diagnosing immunodeficiency, autoimmunity and immunoproliferative diseases. The use of immunoassays to diagnose bacterial and viral infections and malignancies. Basic immunology is reviewed.

Prerequisite: Admitted to the MLSC certificate program; MLSC 7173.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%207187>)

MLSC 7188 Clinical Microbiology and Practicum (6 credits)

Advanced study of pathogenic and normal flora microorganisms having medical importance. Includes methods for obtaining and handling specimens for culture as well as principles of current instrumentation. Identification protocol include cultural, morphological, biochemical, immunological, and molecular characteristics. Examines pathophysiology of infectious diseases caused by bacteria, fungi, parasites and viruses.

Prerequisite: Admitted to MLSC certificate program; MLSC 7124, MLSC 7127 and MLSC 7173.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%207188>)

MLSC 7189 Clinical Urinology and Practicum (2 credits)

Physical, chemical and microscopic study of urine with emphasis on the changes exhibited in disease with related physiology.

Prerequisite: Admitted to the MLSC certificate program; MLSC 7173.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%207189>)

MLSC 7995 Independent Study in Medical Laboratory Studies (1-4 credits)

Faculty-supervised, independent study/research of a specific area or topic in Medical Lab Science.

Prerequisite: Admitted to the MLSC certificate program; cons. of dept. ch. Consent required.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=MLSC%207995>)

Occupational Therapy

OCTH 1001 Introduction to Occupational Therapy (1 credits)

The history and philosophical base of the profession of occupational therapy. Guest speakers highlight the various practice settings where occupational therapists work and the diverse populations they work with, along with current topics of interest within the profession. S/U grade assessment.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%201001>)

OCTH 2931 Special Topics in Occupational Therapy (1-3 credits)

Selected topics, not a part of the regular course work taught because of a special need, interest or opportunity.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%202931>)

OCTH 7010 Foundations of Occupational Therapy (2 credits)

Establishes an understanding of the history and philosophical domain and of occupational therapy through lecture and participatory activities. Explores professional roles of the occupational therapy practitioner including advocate, administrator, researcher, consultant, entrepreneur, educator, practitioner and policy developer. Discovers current and emerging areas of the practice of occupational therapy through grand rounds where guest faculty and practitioners share their experience and expertise. Examines the scope of and standards of practice, core documents of the profession, and professional organizations that support, guide and govern OT practice. Emphasizes professional development and wellness-oriented practice (self-care for the practitioner). Introduces skills for developing effective therapeutic relationships and basic practitioner and patient safety.

Prerequisite: Admitted to OCTH-OTD program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207010>)

OCTH 7135 Applied Anatomy (1 credits)

Examines the anatomical structure-function relationship through active learning methods. Clinically correlates the study of concurrent regional anatomy in BISC 7130 toward knowledge of function, dysfunction and the impact on occupational performance.

Prerequisite: Admitted to OCTH-OTD program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207135>)

OCTH 7140 Kinesiology (4 credits)

Establishes a basis of general biomechanical principles and detailed understanding of human movement. Identifies and examines anatomical structures in the trunk, shoulder girdle and upper extremity and assesses the function of those structures. Studies surface anatomy and the biomechanics of normal and abnormal muscle and joint action. Laboratory sessions focus on practical applications of anatomical principles including muscle origins and insertions contributing to assessment skills in analysis of joint movement, muscle strength, functional mobility and pain.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207140>)

OCTH 7150 Clinical and Health Conditions 1 (2 credits)

Explores the pathology and pathophysiology of disorders pertinent to the practice of occupational therapy across the lifespan through lecture and clinical observations. An introduction to oncology and the pathophysiological disorders of the nervous system are examined. Explores medical and psychosocial aspects of chronic illness and disability as a change from normal aging and physiobiological functioning. Pharmacological and other medical interventions are introduced and integrated with material concurrently presented in other courses. The role of the occupational therapist discussed as functional implications of pathological change from an occupational perspective is explored.

Prerequisite: Admitted to OCTH-OTD program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207150>)

OCTH 7155 Clinical and Health Conditions 2 (2 credits)

Demonstrate competency in the analysis of upper and lower extremity muscle movement, muscle palpation, goniometry of ROM and manual muscle testing. Perform fundamental skills required to support safe, functional mobility including physical transfers, wheelchair management and mobility devices. Correlates kinesiological principles during functional assessment.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207155>)

OCTH 7195 Neuroscience (4 credits)

Examines histology, gross anatomy, organization, and neurobiology of the central nervous system and peripheral nervous system. Determines the impact of neurological conditions and implications of neurological deficits. Evaluates these systems as a basis for human functional capacity and the impact of these systems on function and the dynamic relationship with occupation. Lecture/lab consists of clinical application of the course topics through case studies.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207195>)

OCTH 7200 Occupational Therapy Theory and Process: Orthopedics (4 credits)

Examines and differentiates orthopedic conditions of the upper and lower extremities. Evaluates the biomechanical means of injury through the observations of everyday activity and special testing skills. Integrates knowledge of musculoskeletal injuries including common acute and cumulative trauma conditions and their effects on occupational performance. Applies theories and frames of references in orthopedic rehabilitation to guide evaluation, assessment and intervention. Critically analyzes evidence supporting evaluation and treatment methodologies used with individuals with orthopedic impairments. Demonstrates competency in upper extremity static splinting skills as well as the use of physical agent modalities through experiential learning.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207200>)

OCTH 7201 OT Theory and Process: Physical Agents Modalities (1 credits)

In-depth exploration of the principles, applications and implications of using various physical agent modalities within occupational therapy practice. Students learn to critically analyze the physiological effects, indications, precautions and contraindications of PAMs, including modalities such as thermal agents, electrical stimulation, ultrasound, biofeedback, iontophoresis, diathermy and light therapy. Emphasis is placed on evidence-based practice, ensuring that students understand the importance of current research in guiding their clinical decisions. Through a combination of lectures, hands-on demonstrations, and case-based learning, students develop the skills necessary to effectively incorporate PAMs into comprehensive treatment plans. Additionally, the course addresses ethical considerations and the importance of client-centered intervention, preparing students to advocate for the safe and effective use of PAMs in diverse clinical settings.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207201>)

OCTH 7235 Medical Humanities 1: Values and Ethics (2 credits)

Explores the complexity of authentic leadership as defined in the Ignatian tradition. Discovers the many applications of Ignatian discernment and decision-making in the workplace. Explores scope of practice, standards of practice and professional responsibilities through the lens of Ignatian tradition. Identifies, analyzes and advocates for existing and future service delivery models and policies and opportunities to address societal needs. Discusses the potential effect of such advocacy on the practice of OT.

Prerequisite: Admitted to OCTH-OTD program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207235>)

OCTH 7236 Medical Humanities 2: Equity and Advocacy (2 credits)

Explores the complexity of culture and the cultural formation of health and illness. Examines determinants of health with a particular focus on the patient and provider as persons in social and cultural contexts that shape knowledge, behaviors, attitudes and the potential effect on access, receipt and delivery of care. Demonstrates knowledge of the U.S. health care delivery system and examines health policy framework. Explores potential disparities related to health in the context of bioethics and ethical delivery of care. Examines cultural assumptions about the nature of health, well-being and participation on quality of life, and the implications of cultural differences for occupational therapy practice models and methods including the promotion of health and well-being. Analyzes occupational-based and patient-centered practice.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207236>)

OCTH 7237 Medical Humanities 3: Disability and Justice (2 credits)

Critically reflects on historical perspectives of disability and the influential nature of sociopolitical expectations on the construction of disability over time. Explores the reciprocal influence of contextual and demographic factors on legislation and regulations, policy-making and the implications for public health, and the practice of occupational therapy for persons, groups and populations. Applies advocacy skills to promote the concept of occupational justice and increase awareness of contributory factors that may hinder full participation in society. Analyzes the concept of disability as a misfit between the person-environment transaction.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207237>)

OCTH 7305 Therapeutic Technology, Accessibility and Environments 1 (2 credits)

Demonstrates an understanding of assistive technology (AT) and adaptive equipment as an environmental intervention to preserve, augment or improve social, emotional, physical and academic well-being for persons in the early stages of the lifespan. Explores the use of equipment, assistive devices and therapeutic technology as a means to augment and/or adapt the environment to support occupational performance. Explores strategies that maximize participation in daily activities for young persons with varying limitations and disabilities and in multiple settings. Examines aspects of environment and person-environment interface in the selection, assessment and design/intervention to support occupational performance and participation in the early years of life.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207305>)

OCTH 7306 Therapeutic Technology, Accessibility and Environment 2 (2 credits)

Introduction to the use of assistive technology (AT) and adaptive equipment as an intervention to preserve, augment or improve well-being for persons in early to middle adulthood. Explores the use of equipment, assistive devices and therapeutic technology as a means to augment and/or adapt the environment to support occupational performance. Examines intervention strategies that maximize participation in daily activities for adults with varying limitations and disabilities in home, school, work and community environments. Assessment and intervention strategies developed in the context of home, school, work and community settings using technology to enhance occupational performance.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207306>)

OCTH 7310 Occupational Therapy Theory and Process: Mental Health (4 credits)

Establishes a foundational knowledge for assessment of persons with mental health and psychosocial challenges in various contexts including the use of subjective and objective measures. Emphasizes the utilization of evaluation results to implement evidence-based, theory-driven interventions that support participation and occupational engagement for individuals and groups across the lifespan. A comprehensive introduction to occupational therapy practice in mental health, including selected theoretical perspectives and conceptual models of practice as applied across the lifespan to individual, groups and populations. Explores therapeutic approaches and communication with application of therapeutic use of self, professional reasoning, emotional intelligence, empathy and a client-centered, collaborative approach. Develops clinical reasoning and skills through experiential, self-directed and case-based learning. Designs and facilitates individual and group interventions.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207310>)

OCTH 7315 Occupational Therapy Theory and Process: Children and Youth 1 (6 credits)

Establishes a foundational knowledge for assessment of children and youth in various contexts including the use of subjective and objective measures. Relates etiology and development to models of practice utilized by an occupational therapy practitioner when working with children and youth. Identifies cognitive, motor and social-emotional developmental milestones of infants, early childhood, middle childhood and adolescents. Explores occupations typical of children and adolescents and the impact of disruption on child and family occupational performance and participation within various contexts. Examines and implements the occupational therapy process with children and youth in pediatric settings. Lab experiences focus on theoretical foundations and developmental principles used to guide standardized and non-standardized assessments and pediatric interventions, such as play, sensory integration, cognitive approaches, gross/fine motor skills, social skills, and executive functioning.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207315>)

OCTH 7320 Occupational Therapy Theory and Process: Adult Rehabilitation and Disability (4 credits)

Establishes a foundational knowledge for assessment of adults in various contexts including the use of subjective and objective measures. Applies an understanding of the occupations of individuals in early to middle adulthood and explores conceptual models of practice, theories, frames of reference and evidence-based therapeutic techniques as a foundation for the OT process for adults with physical dysfunction across the continuum of care. Develops skills through in-depth application of physical agent modalities, durable medical and adaptive equipment selection, design and instruction, orthotic fabrication and fitting, and implementation of evidence-based interventions. Integrates principles of ergonomics in lab sessions. Biopsychosocial consideration guides professional reasoning for application of knowledge and impact of physical disability on participation in everyday life.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207320>)

OCTH 7325 Occupational Therapy Theory and Process: Productive Aging (3 credits)

Establishes a foundational knowledge for assessment of aging adults in various contexts including the use of subjective and objective measures. Prioritizes the utilization of assessment results to implement evidence-based, theory-driven interventions that support participation and occupational engagement for the aging adult. Applies an understanding of the occupations of older adults and explores conceptual models of practice, theories of aging and adaptation, and evidence-based therapeutic techniques as a foundation for practice. Develops clinical reasoning and skills through experiential, self-directed, and case-based learning. Examines contemporary practice issues related to productive aging, including inter-professional practice. Compares service delivery models and resources to support older adults and their caregivers across the continuum of care. Develops professional reasoning skills for assessment through the comparison of the concepts of the normal aging process, with biological, physiological, psychosocial, and neurological changes associated with aging and end-of-life care. Designs individual and group interventions. Explores issues that may influence geriatric practice including policy, reimbursement models and ethics.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207325>)

OCTH 7335 Occupational Therapy Theory and Process: Children and Youth 2 (4 credits)

Integrates foundational knowledge from previous course work of pediatric conditions commonly seen in community-based settings, including developmental disabilities, mental health disorders and behavioral disorders to explore clinically relevant and evidence-based best practices. Synthesizes evaluation results to implement evidence-based, theory-driven interventions that support participation and occupational engagement for children and youth in early intervention services and schools. Illustrates effective collaborative techniques and implements community education programs for infants through adolescents and their families. Studies current policies affecting practice with children and youth.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207335>)

OCTH 7360 Practical Applications in Occupational Therapy (2 credits)

Emphasizes application of clinical skills and knowledge acquired to date related to occupational therapy practice. Demonstrates competency in basic clinical practice skills for Level II Fieldwork experiences and professional practice. Engages in experiential learning through group, case-based, and self-directed learning activities.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207360>)

OCTH 7375 Health Through Occupation (2 credits)

Establishes an understanding of occupation as the foundation for occupational therapy theory and practice through the examination of occupation, activity, and participation. Explains the centrality of occupation in health and wellness throughout the lifespan using conceptual models and frames of reference in historical and contemporary occupational therapy practice and outside the discipline of OT. Employs logical thinking, critical analysis, problem solving and creativity to evaluate the dynamics of occupation and activity, including the interaction of areas of occupation, performance skills, performance patterns, activity demands, context(s) and client factors. Applies, analyzes, and evaluates scientific evidence to explain the importance of balancing areas of occupation and the role of occupation in the promotion of health, prevention of disease, illness, and dysfunction for persons, groups, and populations.

Prerequisite: Admitted to OCTH-OTD program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207375>)

OCTH 7377 Health Through Occupation 3 (3 credits)

Applies, analyzes and evaluates scientific evidence to explain the importance of balancing areas of occupation and the role of occupation in the promotion of health, prevention of disease, illness and dysfunction, and utilizes practice models of health promotion and education for persons, groups and populations in various community-based settings. Expands community practice and program development skills, including needs assessment, negotiating community partnerships, program planning and program evaluation. Designs an evidence-driven, theory-based community or primary care program that is capacity building for a community partner.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207377>)

OCTH 7380 Neurorehabilitation 1 (3 credits)

Demonstrates understanding of lifespan approach to evaluation and treatment of neurological conditions. Establishes an understanding of the theoretical assumptions of neurophysiological approaches to neurorehabilitation including framework and approach to assessment and intervention. Explores neuromotor and sensorimotor recovery strategies using the occupational therapy process and applies neurophysiological principles in approach to assessment and intervention for motor control dysfunction. Demonstrates understanding of developmental and motor learning theories and approaches in evaluation and treatment for neurological conditions across the lifespan.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207380>)

OCTH 7381 Neurorehabilitation 2 (2 credits)

Applies theoretical neurological approaches to neurorehabilitation in assessment and intervention of individuals of all ages with neurological dysfunction. Focuses on principles of rehabilitation to maximize participation in activities of daily living including adaptations and modifications to support participation. Explores psychological and neurobehavioral aspects of neurological deficit. Examines specific problem areas after neurological injury including, but not limited to, cognitive and perceptual issues, visual and visuospatial impairments, and speech and language deficits. Demonstrates an understanding of the role of caregiving and the support needs of the caregiver at different phases of neurological recovery.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207381>)

OCTH 7500 Evidence-Based Practice 1: Inquiry and Professional Reasoning (2 credits)

Summarizes the concept of professional reasoning and critical inquiry as the basis for professional decision-making. Establishes an understanding of the development of scientific theory and inquiry. Demonstrates introductory research skills in accessing virtual knowledge, professional writing, critical reading and information literacy. Articulates the importance of quantification and measurement to organize, analyze and relate information both in practice and in research. Explores the framework of the International Classification of Functioning (ICF) Model as a means to evaluate and organize research. An overview of quantitative and qualitative research models is introduced, leading to the creation of a focused question on an area of interest and completion of an annotated bibliography and research report of a case study.

Prerequisite: Admitted to OCTH-OTD program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207500>)

OCTH 7505 Evidence-Based Practice 2: Integration and Synthesis (2 credits)

Integrates evidence with knowledge and experience to date, patient preference and values to make an informed decision. Engages in self-directed and group learning and applies knowledge to case scenarios. Explores the application of evaluation and intervention approaches for case-based persons of all ages and abilities.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207505>)

OCTH 7550 Research Methods (2 credits)

Establishes a foundational understanding of the research process. Compares and contrasts types of research including qualitative and quantitative models. Examines the concept of statistical analyses in the health sciences. Group learning demonstration of understanding of research methods in critique and appraisal of evidence and completion of a Critically Appraised Topic (CAT) on policy and disability theory related to OT practice in concurrent content area of mental health.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207550>)

OCTH 7600 Introduction to Doctoral Capstone (1-3 credits)

Examines the iterative nature of the occupational therapy doctoral capstone process to gain an in-depth understanding of the project and experience. Reflects upon the concepts of literature review, needs assessment, and program development to demonstrate an understanding of the capstone process. Applies this process and identifies resources through the creation of a literature review, needs assessment and program proposal to address identified needs of a marginalized population. Identifies determinants of health and the potential contributions of these determinants to health for marginalized populations. Analyzes epidemiological factors that impact the public health and welfare of populations and evaluate the role of occupational therapy in improving the health of populations. Explores theory-driven, evidence-based community health educational solutions and develop strategies to address occupational participation for marginalized persons.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207600>)

OCTH 7605 Doctoral Capstone Project Development 1 (1-3 credits)

Initiates preparations for the OTD clinical doctoral capstone project. Explores potential areas of scholarship to align interests with a community or clinical partner. Identifies and justifies a feasible scholarship/research topic through the initiation of an in-depth literature review, guided by a faculty mentor. Formulates and clarifies questions relevant to capstone focus area and topic. Develops draft proposal and feasible timelines for planning and implementation of their project including IRB proposal and initial data collection. Determines funding options including grant writing methods. Establishes importance of self-assessment, reflects upon constructive feedback and takes responsibility to organize and manage draft program proposal.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207605>)

OCTH 7610 Doctoral Capstone Project Development 2 (3 credits)

Identifies and analyzes social determinants and epidemiological factors of capstone population. Evaluates and analyzes interaction of occupation and activity in health promotion for capstone population. Applies clinical reasoning and analyzes and evaluates scientific evidence to inform capstone intervention and programming. Examines community practice skills, such as effective communication and teaching-learning principles. Develops program development skills, including needs assessment, negotiating community partnerships, program planning and program evaluation in support of capstone project and experience. Designs an evidence-based, theory-driven community or primary care program that is capacity building for a community partner.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207610>)

OCTH 7625 Leadership and Management (3 credits)

Explores and evaluates business strategies to advocate for, promote, develop, manage, market and expand services related to occupational therapy practice and the delivery of occupational therapy services that includes case management, care coordination, consultation and transition of services. Applies budget development and financial management, strategic planning, marketing and funding procurement through grant writing through the process of program development and evaluation of outcomes. Describes and discusses major leadership philosophies, theories and strategies for conflict resolution, negotiation, and personnel supervision and management. Explores the business complexities of a dynamic health care environment including regulations and compliance issues, reimbursement systems, funding mechanisms, coding and documentation requirements and quality improvement.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207625>)

OCTH 7650 Educational Strategies in Occupational Therapy (2 credits)

Analyzes innovative teaching methods and learning theories underlying occupational therapy practice, teaching tools, resources and strategies to be recognized as engaged, contemporary professionals. Establishes the foundation required to create and prepare educational tools for classroom instruction, clinical and community-based in-services and professional presentations. Improves interview skills; discusses contract negotiations. Explores and compares the roles of practitioner-educator in various contexts including clinical practice and academia.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207650>)

OCTH 7660 Occupational Therapy Advanced Practice (2 credits)

Examines clinical skills and use of evidence to guide practice in specific areas of occupational therapy beyond that of an entry-level practitioner.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207660>)

OCTH 7931 Topics in Occupational Therapy (1-6 credits)

Lectures and discussions in an area which, because of its topicality, is not the subject of a regular course. The special topics are designated in the Schedule of Classes.

Prerequisite: Admitted to OCTH-OTD program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207931>)

OCTH 7932 Advanced Topics in Occupational Therapy (1-4 credits)

Advanced topic of current interest in occupational therapy.

Prerequisite: Admitted to OCTH-OTD program, successful completion of previous courses in program sequence, and cons. of instr. Consent required.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207932>)

OCTH 7953 Specialty Track Seminar (1 credits)

Exploration of a specific area of practice with analysis to develop a deeper understanding of the role of the occupational therapy practitioner. Examines the various ways in which the occupational therapist is integrated within the specialized area of choice and the impact on the population or field of occupational therapy. Identifies and plans appropriate occupational therapy interventions, approaches to interventions, and outcome measures to gain deeper understanding and practical application skills to the area of choice.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207953>)

OCTH 7956 Advanced Research in Occupational Therapy (1-3 credits)

Readings, discussion and participation in research under the direction of an occupational therapy faculty adviser. S/U grade assessment.

Prerequisite: Admitted to OCTH-OTD program and cons. of instr. Consent required.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207956>)

OCTH 7957 Professional Seminar 1 (1 credits)

Students continue work on professional development plan, complete a competency exam prior to clinical rotations and use exam results to develop individual learning goals at the initiation of Level II fieldwork. Round-table discussions and group activities, demonstrating professionalism, in preparation for Level II fieldwork.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207957>)

OCTH 7958 Professional Seminar 2 (1 credits)

Integrates occupational therapy knowledge, concepts and skills in preparation for participation in the Doctoral Experiential Component, completion of the NBCOT licensure exam and autonomous clinical practice. Transfer didactic and clinical knowledge to complete a comprehensive examination designed to capture competency in all content areas and detect safe decision-making skills to identify readiness to proceed as an independent practitioner. Synthesis of information tested with a comprehensive examination allows students to determine areas of strength and need and develop appropriate study plans. Designed to transition the student to the professional level of accountability.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207958>)

OCTH 7960 Integrated Fieldwork Seminar (2 credits)

Concurrent with Level II fieldwork practicum. Students participate in an integrated forum intended to guide the application of didactic knowledge to current fieldwork practice. Engages in critical analysis and discussion of elements of the paradigm of the profession. Content and course section relative to lifespan and/or practice setting of concurrent Level II fieldwork practicum.

Prerequisite: Admitted to OCTH-OTD program, successful completion of previous courses in program sequence, and concurrent enrollment in OCTH 7982.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207960>)

OCTH 7964 Level I Fieldwork: Mental Health (1 credits)

Students engage in service within the community as an integrated learning method. Students also gain deeper understanding of the needs of individuals, groups and local populations and a broader appreciation of the occupational nature of human beings through participation in active, collaborative and inquiry-based learning that meets identified community needs. Examines psychosocial factors and the potential affect on engagement in occupation within communities. Reviews goals, guidelines, policies and procedures for participating in the academic program's Level I (LIFW) and Level II (LIIFW) fieldwork programs. Provides training in confidentiality/privacy laws to support students in abiding by professional ethics and behaviors. Experiential learning varies from site to site. First course of three in the series of Level I fieldwork experiences.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207964>)

OCTH 7966 Level I Fieldwork: Children and Youth (1 credits)

Students engage in service within the community focused on meeting the needs of children and youth. Students also gain deeper understanding of the needs of individuals, groups and local populations and a broader appreciation of the occupational nature of human beings through participation in active, collaborative and inquiry-based learning that meets identified community needs. Experiential learning varies from site to site. Second course of three in the series of Level I fieldwork experiences.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207966>)

OCTH 7968 Level I Fieldwork: Adulthood (1 credits)

Students engage in service within the community focused on meeting the needs of persons in early through middle adulthood. Students also gain deeper understanding of the needs of individuals, groups and local populations and a broader appreciation of the occupational nature of human beings through participation in active, collaborative and inquiry-based learning that meets identified community needs. Experiential learning varies from site to site. Final course in the series of Level I fieldwork experiences.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207968>)

OCTH 7980 Level II Fieldwork A (1-12 credits)

Full-time, clinical fieldwork experiential learning under the supervision of a licensed occupational therapist. Develops entry-level competence through the delivery of occupational therapy services to clients including evaluation, planning, treatment and intervention. Entry-level exposure to occupational therapy practice in a variety of clinical or community-based settings. During the fieldwork process, students are expected to assume increasing responsibilities related to patient or client care. Duration is 12 weeks.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207980>)

OCTH 7982 Level II Fieldwork B (1-12 credits)

Full-time, clinical fieldwork experiential learning under the supervision of a licensed occupational therapist. Develops entry-level competence through the delivery of occupational therapy services to clients including evaluation, planning, treatment and intervention. Entry-level exposure to occupational therapy practice in a variety of clinical or community-based settings. During the fieldwork process, students are expected to assume increasing responsibilities related to patient or client care.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207982>)

OCTH 7996 Doctoral Capstone Experience (1-5 credits)

A customized, 14-week (560 hours minimum) doctoral experiential component to build upon entry-level competence as a generalist practitioner.

Advanced skills are achieved in one or more of the following: clinical practice, research, administration, leadership, program and policy development, advocacy, education or theory development. Students collaborate with community partners to generate specific learning objectives for the mentored practice setting. Utilizes communication with mentors and self-assessment to identify areas of improvement within the capstone experience. Integrates evidence of learning with concurrent Doctoral Capstone course culminating with dissemination.

Prerequisite: Admitted to OCTH-OTD program and successful completion of all required didactic and clinical course work.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207996>)

OCTH 7997 Doctoral Capstone (1-4 credits)

Organizes and manages the planning and implementation of the doctoral capstone project and experience over the course of two terms. The first term involves continued project capstone development and planning in conjunction with concurrent course, Doctoral Capstone Project Development 2.

Requires collaboration with faculty mentor and peers for review of research/scholarship during the capstone process. Students take responsibility for organizing components of capstone planning and self-assessment and reflect upon feedback to refine their plan. In the second term, the focus is on the completion of the doctoral project, including data collection and analysis of data. Culminates in the dissemination of findings from research/scholarly work in a forum of peers, faculty and stakeholders. Preparatory components of the capstone project, as defined by ACOTE, must be completed prior to the second offering of the course and Doctoral Capstone Experience in the final term of the program. Culminates in dissemination of doctoral capstone project.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207997>)

OCTH 7998 Doctoral Capstone Evaluation and Dissemination (1 credits)

Implement capstone project and complete evaluation of project outcomes including data collection and analysis of data. Collaborate with faculty mentor and peers for review of research/scholarship. Complete doctoral project and disseminate findings from research/scholarly work. Integrate findings from scholarly work with doctoral experiential components. Dissemination of their doctoral capstone project in an in-person forum of peers, faculty, and stakeholders. Preparatory components of the capstone project, as defined by ACOTE, must be completed prior to progressing to the final phase of the capstone project and Doctoral Capstone Experience in the terminal semester of the program.

Prerequisite: Admitted to OCTH-OTD program and successful completion of previous courses in program sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=OCTH%207998>)

Physical Therapy

PHTH 1001 Introduction to Physical Therapy and Medical Terminology (1 credits)

Lecture course with two components, medical terminology and introduction to the study of physical therapy and physical therapist practice. The study of medical terminology is pertinent to the health care professions, organized by body systems with a focus on prefixes, suffixes, word roots and their combining form. The medical terminology component primarily follows a self-guided study model. The introduction to Physical Therapy component provides career exposure to physical therapy and includes current topics of interest in the field with several guest speakers/lecturers.

Prerequisite: Direct-Admit PT students; or EXPH major; or ATTR major; or cons. of instr.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%201001>)

PHTH 4512 Culture and Disability (3 credits)

Culture as a product of intrinsic factors of the person (spiritual beliefs and cultural practices) and those extrinsic factors in society (prejudice, racism, stigma, and discrimination) and environment are examined. Students examine their own positions in social systems and determine concrete actions that promote equity and inclusivity within the healthcare setting. Topics include the social determinants of health, the sources and implications of inequity creating healthcare disparities, and ways to create more inclusive and collaborative social and professional processes acting as people with and for others. These skills are applied specifically to the practice of physical therapy.

Prerequisite: PHTH major or cons. of instr.

Level of Study: Undergraduate

Marquette Core Curriculum: Engage Social Systems & Values 2

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%204512>)

PHTH 7120 Pharmacology in Physical Therapy (2 credits)

Pharmacological study to help physical therapy students understand the indications, mechanism of action, and common side effects of medications. Includes a study of a patient's/client's prescription and nonprescription medications and the relationship between medications and physical therapy interventions to improve patient/client outcomes. Further investigates therapeutic and adverse effects as well as drug interactions. Based on an understanding of neurotransmitters and disease pathology, medications used for the most common physical therapy diagnoses are reviewed.

Prerequisite: PHTH major.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207120>)

PHTH 7503 Patient/Client Management 1 (3 credits)

Lecture/laboratory course simulating patient/client interactions and discussing learning units that enforce application of course work to clinical practice. Lab fee.

Prerequisite: PHTH major.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207503>)

PHTH 7504 Patient/Client Management 2 (2 credits)

Lecture/laboratory course simulating patient/client interactions and discussing learning units that enforce application of course work to clinical practice. Patient Management course sequence cannot proceed if students have not successfully completed all required DPT4 course work (preceding or concurrent).

Prerequisite: PHTH major.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207504>)

PHTH 7505 Patient/Client Management 3 (2 credits)

Lecture/laboratory course simulating patient/client interactions and discussing learning units that enforce application of course work to clinical practice, including a writing intensive/documentation requirement that is applicable to future clinical education experiences.

Prerequisite: PHTH major; and concurrent enrollment in PHTH 7974.

Level of Study: Health Sciences Professional

Marquette Core Curriculum: Writing Intensive

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207505>)

PHTH 7513 Health Care Policy/Management (3 credits)

Contemporary issues and management principles in physical therapy practice. Discussions of recent historical and current external environmental factors affecting the delivery of health care services are interwoven with discussions of business, management, and supervisor/leadership principles applicable to the health care service industry. Particular attention is focused on the delivery of physical therapy services under changing environmental conditions.

Prerequisite: PHTH major; or cons. of instr.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207513>)

PHTH 7515 Clinical Pathology and Pathophysiology (4 credits)

Lecture/clinical observations course presents the pathology and pathophysiology of the cardiovascular, pulmonary, renal, endocrine and immune system disorders. Limited introduction to oncology and the pathophysiological disorders of the nervous system. Included are the physical therapy implications of normal aging and disease with an emphasis on the pathological changes and the physiological aspects of each. Pharmacological and other medical interventions are discussed and integrated with material concurrently presented in other courses.

Prerequisite: PHTH major and BIOL 4701 or BISC 4145.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207515>)

PHTH 7516 Geriatric Rehabilitation (2 credits)

Lecture/lab course discusses the implications of aging, disease, physical therapy assessment and interventions and rehabilitation approaches. The laboratory portion includes psychological, sociological and economic aspects of aging plus selected pathological conditions that affect communication, compliance and functional performance. Provides opportunities to refine clinical and problem solving skills in supervised laboratory sessions and supervised clinical experiences in senior center environments.

Prerequisite: PHTH major, PHTH 7503, physiology and current enrollment in PHTH 7515.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207516>)

PHTH 7518 Physiology of Activity (3 credits)

This lecture/laboratory course will concentrate on the assessment of activity tolerance in, and basic principles of, exercise prescriptions for normal healthy individuals through the life span who are either trained or untrained. A functional approach will be emphasized and factors that enhance or impede performance will be examined. Various training strategies will be introduced.

Prerequisite: PHTH major and PHTH 7515; or enrolled in Health Sciences - Professional and PHTH 7515; and current certification in CPR for the health care provider.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207518>)

PHTH 7522 Introduction to Evidence Based Decision Making in Clinical Practice (2 credits)

Teaches physical therapy students how to provide the best possible care for patients according to an evidence based practice model, which integrates clinical experience, external evidence, and patient expectations. Students will learn how to formulate answerable clinical questions, use online databases to access research evidence, critically evaluate clinical and scientific literature related to patient care, integrate and apply the best evidence for practice, and use these skills to become life long learners. Instruction methods include lectures, in class discussions, hands on activities, and student presentations.

Prerequisite: Major in Physical Therapy.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207522>)

PHTH 7525 Kinesiology 1: The Upper Extremity (3 credits)

Anatomy of the muscular and joint systems in normal and abnormal conditions in the upper extremities. Includes surface anatomy, the biomechanics of normal and abnormal muscle and joint action. Lecture, demonstration and laboratory practice.

Prerequisite: PHTH major and BISC 7130 or equiv.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207525>)

PHTH 7526 Kinesiology 2: The Spine and Lower Extremity (3 credits)

Continuation of PHTH 7525 with emphasis on head, trunk and lower extremities, including an introduction to normal gait, posture, and surface anatomy. Lecture, demonstration and laboratory practice.

Prerequisite: PHTH 7525.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207526>)

PHTH 7528 Physical Therapy Evaluation, Tests and Measures (2 credits)

Lecture and clinical laboratory course. The students will learn the general concepts and specific techniques of Physical Therapy evaluation including tests and measures including range of motion, flexibility and strength using diverse instrumentation.

Prerequisite: PHTH major and BISC 7130 or BISC 2135 and BISC2136.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207528>)

PHTH 7530 Pain Mechanisms and Treatment (3 credits)

Lecture and discussion course (based on research evidence and/or best practice) that presents the principles and methods that lead to clinical outcomes related to pain conditions, including the theoretical models for understanding the basis for pain. Content includes pain mechanisms, assessment and physical therapy management.

Prerequisite: PHTH major and PHTH 7558.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207530>)

PHTH 7532 Orthopedics 1 (4 credits)

Lecture, demonstration and laboratory experiences. The elements of patient/client management (examination, evaluation, diagnosis, prognosis and intervention) are applied to musculoskeletal conditions of the upper quadrant.

Prerequisite: PHTH major; PHTH 7515, PHTH 7522, PHTH 7525, PHTH 7528, PHTH 7539 and PHTH 7560.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207532>)

PHTH 7533 Orthopedics 2 (4 credits)

Continuation of PHTH 7532 with an emphasis on the evaluation and treatment of specific musculoskeletal injuries/dysfunctions of the lower quadrant. Includes surgical, non-surgical, traumatic, chronic and sports-related conditions.

Prerequisite: PHTH 7532 and PHTH 7526.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207533>)

PHTH 7539 Diagnostic Imaging Testing (2 credits)

Study of diagnostic imaging techniques as they relate to physical therapy practice areas. Includes study of common medical tests.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207539>)

PHTH 7549 Differential Diagnosis: Screening for Medical Referral (2 credits)

Lecture/lab course focusing on a broad range of medical diseases and their various clinical presentations. The focus is on the use of clinical decision making skills when analyzing a patient's medical history intake and the review of systems. Addresses screening, to include referral for conditions or diseases that are not within a physical therapist's scope of practice.

Prerequisite: PHTH major and PHTH 7515 with a grade of C or better.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207549>)

PHTH 7555 Introduction to Pediatrics: Development and Assessment (2 credits)

Focuses on the physical development that occurs from birth to maturity, specifically motor development. Discusses other developmental areas as well. Introduces the internal and external environmental influences on development, as well as traditional and contemporary theories of motor development. Lab experiences focus on analysis of posture/movement, gross motor testing, the child health screening and child wellness education. Evidence-based practice guidelines are utilized when available, and objective tests and measures are taught and emphasized. Fulfills one of the essential core competencies of entry-level pediatric physical therapy education as outlined in Pediatric Physical Therapy by the Academy of Pediatric Physical Therapy. Lab fee.

Prerequisite: PHTH major; BISC 7130 or BISC 3135/3136 series; PHTH 7525 and PHTH 7526.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207555>)

PHTH 7558 Neuroanatomy (4 credits)

Structure and function of the central nervous system (CNS). Lecture, clinical correlations, clinical problem solving to predict signs and symptoms in patients with PNS and CNS lesions.

Prerequisite: PHTH major.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207558>)

PHTH 7560 Physical Technologies/Electrotherapy/Electrophysiological Testing (4 credits)

Presents the physical and physiological basis and the principles and methods that lead to: 1. clinical outcomes following the therapeutic application of thermotherapy, cryotherapy, actinotherapy and mechanotherapy in the treatment of disorders involving the musculoskeletal, neuromuscular, cardiovascular and integumentary systems; and 2. electrotherapeutic interventions for clinical treatment of individuals with musculoskeletal dysfunction, motor control deficits, acute and chronic pain, and other selected conditions. Electrophysiological testing includes electromyography and nerve conduction velocity evaluation. Lab fee.

Prerequisite: PHTH major.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207560>)

PHTH 7570 Advanced Biomechanics and Kinesiology (4 credits)

Advanced analysis of human movement including gait, orthotics and prosthetics. Rehabilitation focuses on physical therapy interventions for patient/clients with chronic diseases and other conditions necessitating long-term therapeutic intervention.

Prerequisite: PHTH major; PHTH 7525 and 7526 with C or better.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207570>)

PHTH 7577 Wound/Integumentary Physical Therapy (2 credits)

Presents the physical and physiological basis and the principles and methods that lead to clinical outcomes related to the integumentary system. Discusses pathophysiology, diagnosis and management of chronic wounds, management of thermal injuries and edema. Studies infection control and aseptic technique. Lab fee.

Prerequisite: PHTH major.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207577>)

PHTH 7667 Neurological Rehabilitation 1 (2 credits)

Lecture and discussion-based course covering the pathology, etiology, and epidemiology of common neurological diseases. Clinical presentation, differential diagnosis, evaluation, and medical/surgical interventions for the diseases are the focus of the first of a 2-part course series.

Prerequisite: PHTH major and PHTH 7558.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207667>)

PHTH 7668 Neurological Rehabilitation 2 (4 credits)

Continuation of Neurological Rehabilitation 1. Lectures and labs focus on physical therapy interventions for specific impairments, disease-specific conditions, and overall function. Evidence-based practice guidelines are utilized when available, objective tests and measures are emphasized, and case studies are utilized to integrate and apply information.

Prerequisite: PHTH major and PHTH 7667.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207668>)

PHTH 7672 Clinically Applied Evidence Based Decision Making (2 credits)

Continues the process of educating the student how to incorporate evidence into their daily physical therapy practice. Focuses on the idea of incorporating evidence that is thorough and easy to access within daily practice.

Prerequisite: PHTH 7522.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207672>)

PHTH 7675 Pediatric Disorders and Intervention Strategies (4 credits)

Developmental disabilities and other selected pediatric disorders are covered. Concepts of physical therapy evaluation, assessment, goal setting and treatment of the pediatric patient; common treatment theories and techniques and their application to children. Current cultural, ethical, and legal issues related to health care and children.

Prerequisite: PHTH 7555.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207675>)

PHTH 7682 Cardiovascular and Pulmonary Physical Therapy (3 credits)

Lecture/laboratory course that focuses on recuperative/restorative management of clients having primary or secondary involvement of the cardiovascular and/or pulmonary systems. A total gas delivery approach is emphasized through case presentations. Clinical skills to be taught consistent with nationally published Clinical Practice Guidelines that are evidence-based.

Prerequisite: PHTH major; certification in Basic Life Support (CPR); PHTH 7515 and 7518 with C or better.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207682>)

PHTH 7684 Clinical Issues and Decision Making (2-3 credits)

Lecture course with occasional joint labs with the DPT-5 students during class time. The emphasis of this course is to examine and discuss current issues and trends in physical therapy practice, and to mentor DPT-5 students. Topics include patient and professional advocacy, autonomous practice, ethics, jurisprudence, reimbursement, applying the Guide to Physical Therapist Practice to a complex multi-system patient case, resume writing, interview skills, and assessment for learning. Additionally, a representative from the Department of Regulation and Licensing addresses the licensing process.

Prerequisite: PHTH major.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207684>)

PHTH 7713 Principles of Business, Management and Leadership for the Rehab Professional (3 credits)

Foundational concepts and skills necessary for a health care practitioner to gain competency in leadership, leadership of a team, management of groups and organization business processes.

Prerequisite: PHTH major and cons. of instr. Consent required.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207713>)

PHTH 7932 Advanced Topics in Physical Therapy (0-4 credits)

Advanced clinical electives in specific areas of physical therapy practice. 0 credit will be S/U grade assessment; 1-4 credits will be graded.

Prerequisite: PHTH major; or cons. of instr.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207932>)

PHTH 7953 Business, Management and Leadership for the Rehab Professional Journal Club (0 credits)

Review of scholarly articles on current topics related to business, management and leadership within the physical therapy and rehabilitation fields.

Prerequisite: PHTH major in DPT4; and accepted to the business, management and leadership specialization.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207953>)

PHTH 7974 Clinical Education Experience 1 (1-15 credits)

Full-time clinical education experiences supervised by clinical faculty that immerse students in various practice settings throughout the country.

Prerequisite: PHTH major; must be taken in PHTH course sequence.

Level of Study: Health Sciences Professional

Marquette Core Curriculum: Writing Intensive

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207974>)

PHTH 7975 Clinical Education Experience 2 (1-15 credits)

Full-time clinical education experiences supervised by clinical faculty that immerse students in various practice settings throughout the country.

Prerequisite: PHTH major; must be taken in PHTH course sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207975>)

PHTH 7976 Clinical Education Experience 3 (1-15 credits)

Full-time clinical education experiences supervised by clinical faculty that immerse students in various practice settings throughout the country.

Prerequisite: PHTH major; must be taken in PHTH course sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207976>)

PHTH 7977 Clinical Education Experience 4 (1-15 credits)

Full-time clinical education experiences supervised by clinical faculty that immerse students in various practice settings throughout the country.

Prerequisite: PHTH major; must be taken in PHTH course sequence.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207977>)

PHTH 7978 Clinical Education Experience Elective (1-15 credits)

Full-time clinical education experiences supervised by clinical faculty that immerse students in various practice settings throughout the country.

Prerequisite: PHTH major. Consent required.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207978>)

PHTH 7985 Business, Management and Leadership for the Rehab Professional Practicum (3 credits)

Under the supervision of a mentor in a clinical leadership role, students learn the fundamentals of business/administrative/leadership duties within a clinical setting. Students assess communication and leadership styles of their mentors and themselves. Students gain an understanding of how clinical mentors lead their teams to optimize patient care.

Prerequisite: PHTH 7713.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207985>)

PHTH 7995 Independent Study in Physical Therapy (1-3 credits)

Faculty-supervised, independent study/research of a specific area or topic in Physical Therapy. No mid-term assessment assigned.

Prerequisite: PHTH major, cons. of instr., and cons. of dept. ch. Consent required.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207995>)

PHTH 7997 Business, Management and Leadership for the Rehab Professional Capstone (3 credits)

Under the supervision of the clinical leader mentor and the course director, students identify a business, management or leadership topic that will improve or enhance clinic team function. For this topic, students conduct an analysis of the topic within the clinical setting and in the context of other clinical settings, interpret the impact on clinic function/patient care and develop a recommendation for improvement. Students present their findings to the clinic leader, course director and relevant clinic team members.

Prerequisite: PHTH 7985.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHTH%207997>)

Physician Assistant Studies

PHAS 7050 Introduction to Medical History and Physical Examination (3 credits)

Consists of two phases. Phase one develops the student's interviewing skills eliciting a complete medical history. Phase two instructs the student in the methods and modalities to complete an entire adult physical exam. Medical terminology is reviewed throughout. In the end, the student is expected to be competent in eliciting a complete medical history and performing a physical exam, appropriately documenting the history and physical exam including all positive and negative findings. Lab fee.

Prerequisite: PHAS major; admitted to PA program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHAS%207050>)

PHAS 7080 Evidence-Based Practice 1 (2 credits)

Provides a practical approach to making sound medical decisions based on current evidence in medical literature. Using a series of didactic presentations, group exercises, independent inquiry and reading, students learn the basic principles of evidence-based medicine. Emphasizes and practices basic skills in accessing MEDLINE and other medical databases. Introduces research principles, research ethics, and basic statistical analysis. Students use their foundation in EBP throughout their didactic and clinical education. Skills learned are essential in formulating and completing the capstone project in the clinical year of the physician assistant program.

Prerequisite: PHAS major; admitted to PA program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHAS%207080>)

PHAS 7085 Evidence-Based Practice 2 (2 credits)

Provides a practical approach to critically evaluating medical literature and an overview of the fundamentals of effective scientific writing. Explores the process of writing and publishing scientific manuscripts while expanding on knowledge and skills from PHAS 7080. Emphasizes effective small group teamwork to help build team problem-solving, professionalism and leadership skills. The knowledge and skills obtained are essential for formulating and successfully completing the capstone project requirement in the third year of the physician assistant program.

Prerequisite: PHAS 7080; admitted to the PA program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHAS%207085>)

PHAS 7091 Clinical Medicine 1 (5 credits)

Provides a comprehensive presentation of the disease processes commonly encountered in clinical medicine, specifically the specialties of cardiology, hematology/oncology, ophthalmology, and ear, nose and throat. Organized by system, clinical information is presented by core faculty and guest lecturers who work in the particular specialty. Clinical information is presented in conjunction with appropriate, correlative lectures and classes in anatomy, physiology, microbiology, pharmacology, pathology, radiology, laboratory diagnostics, nutrition and patient education. Coordinated with concurrent Clinical Decision Making course.

Prerequisite: Admitted to the PA program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHAS%207091>)

PHAS 7092 Clinical Medicine 2 (5 credits)

Provides a comprehensive presentation of the disease processes commonly encountered in clinical medicine, specifically in the specialty areas of pulmonology, immunology, endocrinology, and medical genetics. Organized by system, clinical information is presented by core faculty and by guest lecturers who work in the particular specialty. Clinical information is presented in conjunction with appropriate, correlative lectures and classes in anatomy, physiology, microbiology, pharmacology, pathology, radiology, laboratory diagnostics, nutrition and patient education. Coordinated with concurrent Clinical Decision Making course.

Prerequisite: PHAS 7091 and admitted to the PA program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHAS%207092>)

PHAS 7093 Clinical Medicine 3 (5 credits)

Provides a comprehensive presentation of the disease processes commonly encountered in clinical medicine, specifically the specialties of behavioral medicine/psychiatry, neurology, dermatology, and gastroenterology. Organized by system, clinical information is presented by core faculty and by guest lecturers who work in the particular specialty. Clinical information is presented in conjunction with appropriate, correlative lectures and classes in anatomy, physiology, microbiology, pharmacology, pathology, radiology, laboratory diagnostics, nutrition and patient education. Coordinated with concurrent Clinical Decision Making course.

Prerequisite: PHAS 7092 and admitted to the PA program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHAS%207093>)

PHAS 7094 Clinical Medicine 4 (5 credits)

Provides a comprehensive presentation of the disease processes commonly encountered in clinical medicine, specifically the specialties of nephrology, urology, orthopedics, rheumatology and women's health. Organized by system, clinical information is presented by core faculty and guest lecturers who work in the particular specialty. Clinical information is presented in conjunction with appropriate, correlative lectures and classes in anatomy, physiology, microbiology, pharmacology, pathology, radiology, laboratory diagnostics, nutrition and patient education. Coordinated with concurrent Pharmacology and Clinical Decision Making courses.

Prerequisite: PHAS 7093 and admitted to the PA program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHAS%207094>)

PHAS 7095 Public Health (2 credits)

Studies the overview of public health system and commonly encountered chronic diseases that have public health implications. Topics include an overview of communicable & noncommunicable disease, violence, chronic stress, obesity/food-related health disorders, preventive medicine, food safety, antibiotic stewardship, exercise prescription, principles of addiction, accidents & injuries, and environmental health.

Prerequisite: PHAS major; admitted to PA program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHAS%207095>)

PHAS 7115 Clinical Decision Making 1 with Medical Coding (2 credits)

Focuses on the development of a systematic approach to the process of solving clinical problems. Emphasizes: 1) gaining familiarity with the differential diagnosis of commonly-encountered clinical problems, and 2) exercising the thought process used in clinical practice to work from a broad differential diagnosis to a single working diagnosis and treatment plan. Accomplished largely by working through mock cases in small groups, individualized assignments and standardized patient encounters. Addresses interpretation of historical, physical exam and diagnostic test data within the context of clinical case studies. Intended to apply and integrate skills and competencies that have been introduced in previous and concurrent course work: the basic sciences, pathophysiology, history taking, interviewing and physical examination skills, ordering and interpreting diagnostic tests, giving oral case presentations and documenting medical data in a written format. Course cases are linked with concurrent clinical medicine sections in PHAS 7091 and 7092.

Prerequisite: PHAS major; admitted to PA program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHAS%207115>)

PHAS 7116 Clinical Decision Making 2 (2 credits)

Focuses on continuing the development of a systematic approach to the process of solving clinical problems. Emphasizes: 1) gaining familiarity with the differential diagnosis of commonly-encountered clinical problems, and 2) exercising the thought process used in clinical practice to work from a broad differential diagnosis to a single working diagnosis and treatment plan. Accomplished largely by working through mock cases in small groups, individualized assignments and standardized patient encounters. Addresses practical experience with commonly-encountered clinical problems used in developing skills for clinical practice. Intended to apply and integrate skills and competencies that have been introduced in previous and concurrent course work: the basic sciences, pathophysiology, history taking, interviewing and physical examination skills, ordering and interpreting diagnostic tests, giving oral case presentations and documenting medical data in a written format. Course cases are linked with concurrent clinical medicine sections in PHAS 7093 and PHAS 7094.

Prerequisite: PHAS major; admitted to the PA program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHAS%207116>)

PHAS 7117 Cultural Diversity in Health Care (2 credits)

Introduction to healthcare delivery to diverse patient populations. Explores various culturally influenced perspectives on health and illness as well as identifying health disparities among certain cultural groups and minority populations. Students work toward becoming culturally competent practitioners by exploring their personal reactions to culturally based medical scenarios.

Prerequisite: PHAS major; admitted to professional phase of Physician Assistant Studies.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHAS%207117>)

PHAS 7118 Clinical Decision Making 3 (3 credits)

Continuation of PHAS 7116 that focuses on application and further development of the student's approach to working-up and solving medical problems, as well as providing patient education and counseling in unique clinical settings. It is intended to build upon, refine and integrate basic clinical skills, interpersonal skills and competencies that students have acquired in previous course work. Students study health disease in social and cultural contexts recognizing health disparities that may exist. Students' clinical skills are honed by providing classroom activities to practice how to approach a focused history, physical exam and address an acute complaint in a simulated primary care outpatient setting.

Prerequisite: PHAS major; admitted to PA program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHAS%207118>)

PHAS 7145 Physician Assistant Practice (1 credits)

Current issues facing the profession, including legal and professional standards and how physician assistants fit into the healthcare system are explored. Students become familiar with the history and traditions of the PA profession as well as the current standards and expectations to practice medicine as a physician assistant. Includes information about certification and licensure, employment, professional organizations and political/legislative topics.

Prerequisite: Admitted to PA program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHAS%207145>)

PHAS 7200 Interpersonal Communication (1 credits)

Intended to build upon basic interviewing skills that were introduced in PHAS 7050. Consists of a series of patient encounters, classroom discussions and readings relevant to working constructively with problems in clinician/patient communications. Addresses common types of difficult patient interactions. Emphasizes self-awareness as the basis upon which clinicians develop an enhanced capacity for empathic listening and responsiveness.

Prerequisite: PHAS major; admitted to PA program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHAS%207200>)

PHAS 7220 Pharmacotherapeutics and Comprehensive Patient Management (4 credits)

Focuses on the development of a systematic approach to the process of solving clinical therapeutic problems and management of comorbid diseases. Emphasizes: 1) gaining familiarity with the medications used for commonly-encountered clinical problems, and 2) exercising the thought process of rational pharmacologic management. Accomplished through a lecture-style format by working through clinical patient scenarios in small groups.

Intended to apply and integrate information introduced in previous course work: basic clinical sciences – including pathology, physiology and microbiology; evaluation of the history and physical exam; and interpreting diagnostic information.

Prerequisite: PHAS major, BISC 7220, and admitted to PA program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHAS%207220>)

PHAS 7230 Geriatric Medicine (2 credits)

An introduction into the biological aspects of aging, latency of disease, clinical geriatric syndromes, atypical disease presentations, drug prescribing and long term care of the elderly. Students develop an understanding of the special considerations and knowledge needed for clinical assessment and management of this special patient population.

Prerequisite: PHAS major; admitted to PA program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHAS%207230>)

PHAS 7235 Emergency Medicine (3 credits)

A comprehensive introduction to the diagnosis and treatment of common and life-threatening adult and pediatric problems in the emergency department. Knowledge of conditions, their salient features and medical management in the emergency context are delivered in lectures and small group case discussions led by emergency medicine PAs. Integrates prior and developing knowledge of microbiology, pathophysiology, clinical medicine, history and physical exam skills, pediatrics, pharmacology, public health, surgery and women's health.

Prerequisite: PHAS major; admitted to PA program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHAS%207235>)

PHAS 7245 Professional and Ethical Issues (1 credits)

Emphasis is on current issues facing the profession, and the unique place for PAs within the health care system. Prepares students for entry into clinical field-based practice and transition into clinical practice focusing on professional issues unique to the profession. Addresses health care and medical related ethics that PAs might encounter from a systems based perspective.

Prerequisite: PHAS major; admitted to PA program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHAS%207245>)

PHAS 7250 Surgical Principles and Procedures (3 credits)

An introduction to the role of the physician assistant in surgery and surgical procedures commonly performed in post-operative care. Employs a system-oriented, problem-based approach and presents clinical information in conjunction with appropriate, correlative lectures or labs in anatomy, physiology, microbiology, pharmacology, pathology, radiology, laboratory diagnostics and nutrition.

Prerequisite: PHAS major; admitted to PA program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHAS%207250>)

PHAS 7260 Pediatric Medicine (3 credits)

An introduction to pediatric medicine. Covers the well child exam from birth through adolescence, and common medical problems encountered in the pediatric setting. Employs a system-oriented, problem based approach and clinical information is presented in conjunction with appropriate, correlative lectures or labs in anatomy, physiology, pharmacology, pathology, radiology, laboratory diagnostics, and nutrition.

Prerequisite: PHAS major; admitted to Physician Assistant Studies.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHAS%207260>)

PHAS 7265 Health Care Systems (1 credits)

Familiarizes the student with the ever-changing health care marketplace and the Physician Assistant Profession's role within it. Traces the mechanism of the health care delivery system from the basic patient encounter through to the variations in healthcare delivery among the various paid and subsidized systems, including Federal, State and private systems. Also explores the various local, state, and federal patient resource programs that are available and addresses how to help patients access them as a provider. Concludes with an in-depth look at the medical coding system and teaches the students how and why to code properly.

Prerequisite: PHAS major; admitted to PA program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHAS%207265>)

PHAS 7270 Diagnostics Technology (3 credits)

Consists of three distinct class sections: a 12-Lead ECG interpretation section, a radiology section and a laboratory section. Provides a broad introduction to these topics that are expanded upon in the clinical medicine sections and clinical decision-making courses. The ECG interpretation section provides students with a systematic method of interpreting a 12-Lead ECG with respect to rate, rhythm and blocks, electrical axis determination, hypertrophy (atria and ventricles), ischemia/injury/infarction, and miscellaneous drug, electrolyte, disease, and pacemaker effects. The radiology section provides students with a systematic method of interpreting common radiographic studies seen in primary care. The laboratory section emphasizes the utilization of laboratory methods for the diagnosis and treatment of disease. The content focuses on those aspects pertinent to the provision of ambulatory primary care.

Prerequisite: PHAS major; admitted to PA program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHAS%207270>)

PHAS 7301 Experiential Learning 1 (2 credits)

Focuses on practicing and implementing history taking and physical exam skills while providing medical care at an urban community clinic to an underserved community; and using simulation, task trainers, and in-person labs to teach and practice procedural and technical skills. Procedures include slit lamp, NP/OP swabs, cerumen removal, EYE/EAR sims, OSHA/BB pathogens, phlebotomy/IV starts, EKG, injections, glucometer, spirometry/eNO, airway, suturing and ultrasound.

Prerequisite: PHAS major; admitted to the PA program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHAS%207301>)

PHAS 7302 Experiential Learning 2 (1 credits)

Focuses on practicing and implementing history taking and physical exam skills while providing medical care at an urban community clinic to an underserved community; and using simulation, task trainers, and in-person labs to teach and practice procedural and technical skills. Procedures include Lp lab, biopsy, cryotherapy, hemocult, Foley, male/female GU lab, joint aspirations, joint injections, digital blocks, splinting. Also includes suture 2, ultrasound 2, BLS.

Prerequisite: PHAS major; admitted to the PA program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHAS%207302>)

PHAS 7303 Experiential Learning 3 (1 credits)

Focuses on practicing and implementing history taking and physical exam skills while providing medical care at an urban community clinic to an underserved community; and using simulation, task trainers, and in-person labs to teach and practice procedural and technical skills. Correlating procedures include trauma lab, scrub lab, wound lab, suture 3, ultrasound 3 (eFAST, RUSH exam, procedural ultrasound), ACLS, mega code practice, procedure day, rounds.

Prerequisite: PHAS major; admitted to the PA program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHAS%207303>)

PHAS 7550 Remediation (0-6 credits)

Variable credits. Variable titles. 0 credit will be SNC/UNC grade assessment; 1-6 credits will be graded.

Prerequisite: Cons. of dept. ch. Consent required.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHAS%207550>)

PHAS 7887 Summative Clinical Assessment (0-3 credits)

Offered every term of the clinical year. Utilizes several evaluation tools to provide a comprehensive appraisal of every student's readiness and eligibility for graduation. Students complete case presentations, including one on public health disparities, complete Observed Simulated Clinical Experiences (OSCEs) with standardized patients, and participate in small-group workshops/lectures/SIM, offering students an individualized approach to their education. Students also complete multiple comprehensive summative assessments, including the PAEA PACKRAT exam I and II, MU PA summative examination based on the NCCPA examination PANCE guidelines, and the PAEA End-of-Curriculum Exam. 0 credit is SNC/UNC grade assessment; 1-3 credits are graded.

Prerequisite: Admitted to the PA program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHAS%207887>)

PHAS 7931 Topics in Physician Assistant Studies (1-6 credits)

Used for topics course.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHAS%207931>)

PHAS 7986 Internship in Physician Assistant Studies (1-8 credits)

The PHAS 7986 course series corresponds to individual student clerkship schedules in the clinical year, with all students completing rotations in internal medicine (inpatient), emergency medicine, surgery and family medicine. Students fill the remaining clinical year schedule with women's health, pediatrics, behavioral health and specialty elective rotations. May be offered graded or S/U.

Prerequisite: PHAS major; admitted to PA the program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHAS%207986>)

PHAS 7995 Independent Study in Physician Assistant Studies (1-6 credits)

Faculty-supervised, independent study/research of a specific area or topic in Physician Assistant Studies.

Prerequisite: Admitted to PA program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHAS%207995>)

PHAS 7997 Master's Capstone Project (0-3 credits)

Capstone in the clinical year centers on the completion of a written paper. Requires students to select a pertinent health topic, propose a relevant clinical question, complete a thorough literature search and draw conclusions based on the data/evidence. These findings are then presented in the form of a clinical paper suitable for publication in a medical journal and as a presentation. Students work 1:1 with an assigned faculty member to complete this project. 0 credit is SNC/UNC grade assessment; 1-3 credits are graded.

Prerequisite: PHAS major; admitted to the PA program.

Level of Study: Health Sciences Professional

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=PHAS%207997>)

Speech Pathology and Audiology

SPPA 1001 Introduction to Speech-Language Pathology and Audiology (3 credits)

An introduction to the disorders of speech, language, hearing and feeding/swallowing. Overview of assessment and intervention of typical vs disordered development and how they contrast with multicultural differences. The anatomical and physiological basis for communication and feeding. Exploration of the consequences of a communicative/swallowing disorder including the roles of various professionals and family members. Exploration of career options and professional/ethical issues. Lab Fee.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%201001>)

SPPA 1002 Introduction to Speech Pathology and Augiology Lab (1 credits)

An exploration of the fundamental concepts in communication disorders through engagement in introductory clinical observations, and practice basic skills used to assess speech, language and hearing. Through a series of structured lab activities, students will gain insights into the practical applications of theory covered in the introductory lecture course. Lab fee.

Prerequisite: SPPA major; or cons. of dept.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%201002>)

SPPA 1100 Anatomy and Physiology of the Speech Mechanism (3 credits)

Anatomy and physiology of the speech production mechanism, including bases for phonation, articulation, breathing, and neural control.

Prerequisite: SPPA major; or SPLA major; or cons. of dept. ch.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%201100>)

SPPA 2120 Phonetics and Phonology (3 credits)

Introduction to the study of speech sound production including anatomical and physiological bases and typical development. Descriptive systems for characterizing the production of speech sounds and speech errors. Phonetic transcription of typical and disordered speech in addition to dialectal and multicultural variations. Understanding the difference between articulation and phonology. Phonological concepts, principals and development.

Prerequisite: SPPA major; or SPLA major; or cons. of dept. ch.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%202120>)

SPPA 2130 Child Language Development (3 credits)

Overview of general linguistic concepts and their application to the acquisition of language by young children. Stages of language development from infancy through school age are discussed. How children grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional and physical areas. Issues pertinent to cultural and linguistic diversity are embedded in the course content.

Prerequisite: SPPA major; or SPLA major; or cons. of dept. ch.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%202130>)

SPPA 2210 Child Language Disorders (3 credits)

Survey of the linguistic and developmental characteristics of children with special needs who have primary or secondary difficulties acquiring language. An overview of descriptive assessment of language profiles and language intervention issues is provided. Issues pertinent to cultural and linguistic diversity are embedded in the course content.

Prerequisite: SPPA major and SPPA 1001 and SPPA 2130; or SPLA major and SPPA 2130; or cons. of dept. ch.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%202210>)

SPPA 2220 Child Speech Sound Disorders (3 credits)

Differential diagnosis and treatment of children with speech sound disorders. Populations addressed include those with articulation disorder, phonological impairment, childhood apraxia of speech and dysarthria. Dialectal variation and bilingualism and their impact on clinical procedures are addressed. The functional and social-emotional implications of diagnosis are also discussed. A cura personalis approach and consideration of referrals to other allied health professionals is provided.

Prerequisite: SPPA major and SPPA 1001 and SPPA 2120 and SPPA 1100; or SPLA major and SPPA 2120 and SPPA 1100; or cons. of dept. ch.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%202220>)

SPPA 3140 Speech Science (3 credits)

Study of the speech code. Linguistic, physiological, and acoustical components of the code are considered in relation to both speech production and recognition. Instrumentation useful in the clinical and laboratory analysis of speech is considered.

Prerequisite: SPPA major and SPPA 1100; or SPLA major and SPPA 1100; or cons. of dept. ch.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%203140>)

SPPA 3510 Introduction to Audiology (3 credits)

Principles and techniques of audiometric testing; study of basic acoustics and psychoacoustics; anatomy and physiology of the hearing mechanism; introduction to pathologic conditions of the hearing mechanism.

Prerequisite: SPPA major and SPPA 3140, which may be taken concurrently; or cons. of dept. ch.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%203510>)

SPPA 3710 Intervention Methods in Speech-Language Pathology (3 credits)

Introduction to clinical procedures and management techniques for serving clients with a variety of communication disorders. Topics include goal-writing, documentation, implementing evidence-based practice, managing attention and behavior, professional ethics, interprofessional practice, clinical settings and service delivery models, supervision, family-centered practice and counseling, working with diverse populations, and professional and legislative issues.

Prerequisite: Cons. of dept. ch.; SPPA major, SPPA 2210 and SPPA 2220, which may be taken concurrently and SPPA 3964, which must be taken concurrently; or SPLA major and SPPA 6965, which must be taken concurrently. Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%203710>)

SPPA 3964 Practicum in Speech-Language Pathology 1: Campus Clinic (1-3 credits)

Students serve as cooperating clinicians to assist primary student clinicians in provision of speech-language therapy services in campus clinic under the direct supervision of clinical faculty. Students earn guided observation hours and learn intervention procedures and methods. May be repeated with consent. S/U grade assessment. Lab fee.

Prerequisite: SPPA major; or SPLA major; or cons. of dept. ch.; SPPA 3710, which must be taken concurrently. Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%203964>)

SPPA 4160 Neurological Bases of Human Communication Processes and Related Functions (3 credits)

Study of the structural, functional and organizational frameworks of the central and peripheral nervous systems as they relate to human communication processes and related functions.

Prerequisite: SPPA major, SPPA 1100 and Jr. stdng; or cons. of dept. ch.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%204160>)

SPPA 4230 Stuttering and Other Fluency Disorders (1.5 credits)

Introduction to the symptomatology, phenomenology, etiology, assessment and management of stuttering and other fluency disorders in children and adults.

Prerequisite: SPPA major and admitted to the Accelerated Degree Program; or cons. of dept. ch.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%204230>)

SPPA 4520 Hearing Disorders (3 credits)

Extensive study of hearing disorders and the psychological and social implications of hearing impairment. Habilitation/rehabilitation strategies are discussed.

Prerequisite: SPPA major and SPPA 3510; or SPLA major and SPPA 3510; or cons. of dept. ch.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%204520>)

SPPA 4530 Audiological Rehabilitation (3 credits)

An in-depth look at the process of aural rehabilitation across the lifespan and how amplification, assistive listening devices, sensory aids, visual communication training, auditory training and counseling contribute to that process.

Prerequisite: SPPA major and SPPA 3510; or cons. of instr. and cons. of dept. ch.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%204530>)

SPPA 4610 Culturally Responsive Practices in Speech Language Pathology and Audiology (3 credits)

Study of culture and communication in linguistically diverse populations [i.e., Non-Standard American English speakers, Native Americans, (with emphasis on Wisconsin Native tribes) Asians, and Latinos]. Includes L1 and L2 acquisition profiles and information pertaining to service delivery with non-native English speakers. The U.S. Latinx population is emphasized. Students' knowledge and understanding of racism are explored. Meets the multicultural requirements for the Wisconsin Department of Public Instruction licensing in speech-language pathology.

Prerequisite: SPPA major, Jr. stdng. and concurrent service learning experience required.

Level of Study: Undergraduate

Interdisciplinary Studies: Africana Studies, Latinx Studies

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%204610>)

SPPA 4720 Diagnostic Methods in Speech-Language Pathology (3 credits)

Provide students with an understanding of the components inherent in the diagnostic process. These include but are not limited to: a) an overview of diagnostic models, b) sources of delays and disorders, c) purposes of assessment, d) interviewing techniques, e) testing and measurement caveats, f) framework for analysis of the data, g) interpretation of results to families or referral sources, and h) report writing.

Prerequisite: SPPA 3710 and SPPA major or cons. of dept. ch.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%204720>)

SPPA 4750 Introduction to Pediatric Feeding (3 credits)

Introduction to typical feeding development and clinical procedures for diagnosis of pediatric feeding disorders. Overview of interdisciplinary expectations for general development, anatomy and physiology, nutrition, aerodigestive and neurologic systems from birth through early childhood.

Prerequisite: SPPA 4720. Consent required. Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%204750>)

SPPA 4956 Undergraduate Research in Speech Pathology and Audiology (1 credits)

Research experience in experimental design and analysis in a selected area of focus with faculty guidance and supervision. S/U grade assessment.

Prerequisite: Cons. of instr. Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%204956>)

SPPA 4961 Special Institute/Workshop/Project (1-3 credits)

Project 1-3 sem. hrs.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%204961>)

SPPA 4964 Practicum in Speech-Language Pathology 2: Campus Clinic (1 credits)

Students serve as primary clinicians in the provision of speech-language therapy services in campus clinic under the direct supervision of clinical faculty. S/U grade assessment. Lab fee.

Prerequisite: Cons. of dept. ch. based on cumulative GPA of at least 3.000 and rating earned in SPPA 3964. Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%204964>)

SPPA 4965 Practicum in Audiology: Campus Clinic (1 credits)

Supervised clinical experience in on campus audiology clinic performing pediatric and adult diagnostic assessments and aural rehabilitation.

Prerequisite: SPPA major and SPPA 3510 and cons. of instr.; or SPLA major and SPPA 3510 and cons. of instr.; or cons. of instr. and cons. of dept. ch. Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%204965>)

SPPA 4995 Independent Study in Speech-Language Pathology and Audiology (1-3 credits)

Faculty-supervised, independent study/research of a specific area or topic in Speech-Language Pathology and Audiology.

Prerequisite: Cons. of dept. ch. Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%204995>)

SPPA 4999 Senior Thesis (1-3 credits)

The application of rigorous methodology in developing and writing a thesis under the direction of an adviser.

Prerequisite: Cons. of dept. ch. Consent required.

Level of Study: Undergraduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%204999>)

SPPA 5160 Neurological Bases of Human Communication Processes and Related Functions (3 credits)

Study of the structural, functional and organizational frameworks of the central and peripheral nervous systems as they relate to human communication processes and related functions.

Prerequisite: Enrolled in the SPLA program.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%205160>)

SPPA 5230 Stuttering and Other Fluency Disorders (1.5 credits)

Introduction to the symptomatology, phenomenology, etiology, assessment and management of stuttering and other fluency disorders in children and adults.

Prerequisite: SPLA program; or admitted to the Accelerated Degree Program; or cons. of dept. ch.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%205230>)

SPPA 5520 Hearing Disorders (3 credits)

Extensive study of hearing disorders and the psychological and social implications of hearing impairment. Discusses habilitation/rehabilitation strategies.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%205520>)

SPPA 5530 Audiological Rehabilitation (3 credits)

An in-depth look at the process of aural rehabilitation across the lifespan and how amplification, assistive listening devices, sensory aids, visual communication training, auditory training and counseling contribute to that process.

Prerequisite: SPLA program and SPPA 3510; or cons. of instr. and cons. of dept. ch.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%205530>)

SPPA 5610 Culturally Responsive Practices in Speech Language Pathology and Audiology (3 credits)

Study of culture and communication in linguistically diverse populations [i.e., Non-Standard American English speakers, Native Americans, (with emphasis on Wisconsin Native tribes) Asians, and Latinos]. Includes L1 and L2 acquisition profiles and information pertaining to service delivery with non-native English speakers. The U.S. Latinx population is emphasized. Students' knowledge and understanding of racism are explored. Meets the multicultural requirements for the Wisconsin Department of Public Instruction licensing in speech-language pathology.

Level of Study: Graduate

Interdisciplinary Studies: Africana Studies, Latinx Studies

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%205610>)

SPPA 5720 Diagnostic Methods in Speech-Language Pathology (3 credits)

Provide students with an understanding of the components inherent in the diagnostic process. These include but are not limited to: a) an overview of diagnostic models, b) sources of delays and disorders, c) purposes of assessment, d) interviewing techniques, e) testing and measurement caveats, f) framework for analysis of the data, g) interpretation of results to families or referral sources, and h) report writing.

Prerequisite: Enrolled in the SPLA program.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%205720>)

SPPA 5750 Introduction to Pediatric Feeding (3 credits)

Introduction to typical feeding development and clinical procedures for diagnosis of pediatric feeding disorders. Overview of interdisciplinary expectations for general development, anatomy and physiology, nutrition, aerodigestive and neurologic systems from birth through early childhood.

Prerequisite: Consent required. Consent required.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%205750>)

SPPA 6210 Child Language Intervention Issues (3 credits)

Includes basic information pertaining to current theories of language and literacy impairments in children. Provides an examination of the linguistic characteristics of children with primary and secondary language impairments. Includes information about both theoretical and applied aspects of language and literacy intervention from infancy through adolescence. Reading disabilities and instructional methods for reading and writing are discussed. Issues pertinent to cultural and linguistic diversity are embedded in the course content.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%206210>)

SPPA 6220 Child Speech Sound Intervention (3 credits)

Advanced study of differential diagnosis and treatment of children with speech sound disorders. Populations addressed include those with articulation disorders, phonological impairment, childhood apraxia of speech and dysarthria, including those with co-occurring disorders. Addresses dialectal variation and bilingualism and their impact on clinical procedures. The functional and social-emotional implications of diagnosis are also discussed. Provides a cura personalis approach and consideration of referrals to other allied health professionals. Active participation and critical thinking are essential for success. Course materials are applied in the context of clinical case studies and presentations.

Prerequisite: SPPA 2210 or equiv.; competency in phonetic transcription and a clear understanding of phonological patterns.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%206220>)

SPPA 6320 Adult Language Disorders (3 credits)

A comprehensive review of neurogenic disorders of adult language. Topics include: differential diagnosis of aphasia, linguistic analysis of different aphasic syndromes, clinical testing, and rehabilitation. Also discusses differential diagnosis of language disturbances associated with dementia and right/left hemispheric pathologies.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%206320>)

SPPA 6330 Sensorimotor Speech Disorders (3 credits)

A survey of the etiology, symptomatology and clinical management of sensorimotor speech disorders associated with neuromuscular diseases and/or traumatic neuromuscular impairments. Topics discussed include dysarthria and apraxia.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%206330>)

SPPA 6340 Cognitive Disorders (3 credits)

Provides a theoretical and clinical framework for understanding the neuropsychological-cognitive-communicative and psychosocial issues associated with neurologic brain injuries and for providing treatment of impaired cognitive-communicative processes. Incorporates knowledge of cortical functions and human cognition for evaluating the communicative-cognitive disorders. Students learn about treatment implementation and communicative counseling by actively solving clinical problems.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%206340>)

SPPA 6410 Voice Disorders (1.5 credits)

In-depth study of voice disorders including those with neurological, organic, psychological and/or functional causes. Advanced training on voice assessment is provided using various behavioral, acoustic and instrumental measures. Treatment approaches include a breadth of behavioral, pharmacological and medical/surgical interventions. Provides training in how to perceive and rate different types of vocal qualities. Examines clinical case studies.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%206410>)

SPPA 6420 Swallowing Disorders (3 credits)

Anatomy and physiology of the normal swallow in adults; anatomic and physiologic disorders affecting the process of swallowing (deglutition) with emphasis on radiographic and bedside diagnostic and treatment procedures. Includes a lab experience and analysis of videofluoroscopic studies of the swallowing process.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%206420>)

SPPA 6430 Craniofacial Disorders (3 credits)

Intended to provide a background in craniofacial speech disorders. Begins with a review of embryological development of the head/face, craniofacial syndromes and their etiologies, and the anatomy and physiology of the velopharyngeal mechanism. Discusses the importance of "team care" and the role of the various disciplines on the craniofacial team. Presents both instrumental and non-instrumental assessment techniques. Intervention focuses primarily on adapting traditional and phonological approaches to the treatment of craniofacial speech disorders.

Prerequisite: SPPA 2220 or equiv.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%206430>)

SPPA 6620 Speech and Language Assessment in Bilingual Populations (3 credits)

Study of the principles and techniques of assessing bilingual populations with an emphasis on the Spanish-English bilingual speaker. Instruction in formal and informal methods and strategies for assessing speech and language skills in children and adults.

Prerequisite: SPPA 5720 or equiv.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%206620>)

SPPA 6630 Speech and Language Intervention in Bilingual Populations (3 credits)

Study of intervention approaches and techniques in the remediation of communication disorders in bilingual populations, with an emphasis on the Spanish-English bilingual speaker. Includes speech and language intervention techniques which focus on facilitating language for learning, language for communication, and the remediation of speech and language impairments in adults and children.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%206630>)

SPPA 6640 Augmentative and Alternative Communication (AAC) (3 credits)

Deals with certain problems met when attempting to habilitate or rehabilitate children and adults who have essentially normal hearing, for whom speech is unlikely to be adequate for at least some communicative purposes (either temporarily or permanently). Gestural and instrumental augmentative communication strategies. Provides necessary information to both select the most advantageous strategy for clients and teach them how to use it.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%206640>)

SPPA 6650 Intervention Issues with the Birth-to-Three Child (3 credits)

Learn developmental screening, assessment and family-based intervention specific to communicative speech and feeding aspects of the birth-to-three child. Gain knowledge of prevention, assessment and intervention of swallowing and receptive and expressive language development including prelinguistics. Emphasizes identification and treatment issues specific to multicultural considerations, case management, and interdisciplinary/transdisciplinary assessment and intervention.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%206650>)

SPPA 6730 Procedures in Medical and School Settings (3 credits)

Introduces terminology, laws and procedural requirements for speech-language pathology programs in both school and medical settings. Presents documentation and professional interactions in a variety of work settings. Combination of lecture and simulated activities to prepare students for functioning in off-campus medical and school placements. Addresses Wisconsin school and medical speech-language pathology licensing and national certification requirements. Complete intermediate review of the State of Wisconsin, Department of Public Instruction portfolio.

Prerequisite: Completion of initial review of the State of Wisconsin, Department of Public Instruction portfolio, or cons. of instr.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%206730>)

SPPA 6735 Procedures in Medical Settings (1.5 credits)

Introduces terminology, laws and procedural requirements for speech-language pathology programs in medical settings. Presents documentation and professional interactions in a variety of work settings. Combination of lecture and simulated activities to prepare students for functioning in off-campus medical placements. Addresses Wisconsin medical speech-language pathology licensing and national certification requirements.

Prerequisite: Enrolled in the SPLA program.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%206735>)

SPPA 6736 Procedures in School Settings (1.5 credits)

Introduces terminology, laws and procedural requirements for speech-language pathology programs in school settings. Presents documentation and professional interactions in a variety of school settings. Combination of lecture and simulated activities to prepare students for functioning in off-campus school placements. Addresses Wisconsin school speech-language pathology licensing and national certification requirements.

Prerequisite: Enrolled in the SPLA program.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%206736>)

SPPA 6750 Clinical Research Methodology (3 credits)

Overview of research design and its application to the field of speech-language pathology. Factors affecting validity of research. Different types of experimental and quasi-experimental designs. Analysis and presentation of research data. Ethical, financial, and practical factors that affect the conduct of research.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%206750>)

SPPA 6760 Professional Affairs in Speech Pathology (3 credits)

Administrative organization, problems and practices in various settings in which speech and hearing clinicians function: school systems, community clinics, hospitals, universities, training centers, and in private practice.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%206760>)

SPPA 6790 Clinical Grand Rounds in Speech-Language Pathology (1 credits)

Completion of advanced case studies in communication/swallowing disorders. Discussion of professional issues, including requirements and application process for licenses and certification, preparation for interview and job search, and professional ethics.

Prerequisite: Completion of at least 20 graduate credit hours in speech pathology and audiology.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%206790>)

SPPA 6931 Topics in Speech-Language Pathology (1-3 credits)

Topics of current interest to speech-language pathology. Grade basis is variable as needed.

Prerequisite: Admitted to the SPLA-MS program; or cons. of instr.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%206931>)

SPPA 6961 Speech-Language Pathology Workshop (0-3 credits)

Workshop topics vary, depending on need and demand. 0 credit is SNC/UNC grade assessment; 1-3 credits is S/U grade assessment.

Prerequisite: Enrolled in the SPLA program. Consent required.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%206961>)

SPPA 6965 Practicum in Speech-Language Pathology: Campus Clinic (1-3 credits)

Supervised direct clinical experience in the campus clinic, with a primary focus on provision of speech-language therapy and potential opportunities for assessment. S/U grade assessment. Lab fee.

Prerequisite: Enrolled in the SPLA program.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%206965>)

SPPA 6966 Practicum in Speech-Language Pathology: Diagnostic Methods (1-3 credits)

Supervised direct clinical experience in the campus clinic, including comprehensive speech-language evaluations and provision of speech-language therapy. S/U grade assessment. Lab fee.

Prerequisite: SPPA 4720 or SPPA 5720, which may be taken concurrently.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%206966>)

SPPA 6967 Practicum in Speech-Language Pathology: School Setting (3 credits)

Speech pathology practicum in a school setting. Student is responsible for transportation costs. S/U grade assessment.

Prerequisite: SPPA 6730, SPPA 6965 and SPPA 6966.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%206967>)

SPPA 6968 Practicum in Speech-Language Pathology: Medical Setting (3 credits)

Supervised off-campus practicum in a medical setting, providing evaluation and intervention experiences. Student is responsible for transportation costs. S/U grade assessment.

Prerequisite: SPPA 6730, SPPA 6965 and SPPA 6966.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%206968>)

SPPA 6995 Independent Study in Speech Pathology and Audiology (1-3 credits)

Faculty-supervised, independent study/research of a specific area or topic in Speech Pathology and Audiology.

Prerequisite: Cons. of dept. ch. and cons. of SPPA M.S. dir. Consent required.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%206995>)

SPPA 6999 Master's Thesis (1-6 credits)

S/U grade assessment.

Prerequisite: Cons. of dept. ch., cons. of SPPA M.S. dir., approved thesis outline and establishment of a thesis committee. Consent required.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%206999>)

SPPA 9978 Field Placement Continuation: Half-Time (0 credits)

Fee. S/U grade assessment. Allows a student to be considered the equivalent of half-time status. Requires that the student is working more than 12 to less than 20 hours per week at their field placement.

Prerequisite: Cons. of SPLA M.S. dir. Consent required.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%209978>)

SPPA 9979 Field Placement Continuation: Full-Time (0 credits)

Fee. S/U grade assessment. Allows a student to be considered the equivalent of full-time status. Requires that the student is working 20 hours or more per week at their field placement.

Prerequisite: Cons. of SPLA M.S. dir. Consent required.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%209979>)

SPPA 9984 Master's Comprehensive Examination Preparation: Less than Half-Time (0 credits)

Fee. S/U grade assessment. Allows a student to be considered the equivalent of less than half-time status. Requires that the student is working less than 12 hours per week toward their master's comprehensive exam.

Prerequisite: Cons. of SPLA M.S. dir. Consent required.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%209984>)

SPPA 9985 Master's Comprehensive Examination Preparation: Half-Time (0 credits)

Fee. S/U grade assessment. Allows a student to be considered the equivalent of half-time status. Requires that the student is working more than 12 to less than 20 hours per week toward their master's comprehensive exam. May be taken in conjunction with credit-bearing or other non-credit courses to result in the status indicated, as deemed appropriate by the department.

Prerequisite: Cons. of SPLA M.S. dir. Consent required.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%209985>)

SPPA 9986 Master's Comprehensive Examination Preparation: Full-Time (0 credits)

Fee. S/U grade assessment. Allows a student to be considered the equivalent of full-time status. Requires that the student is working 20 hours or more per week toward their master's comprehensive exam. May be taken in conjunction with credit-bearing or other non-credit courses to result in the status indicated, as deemed appropriate by the department.

Prerequisite: Cons. of SPLA M.S. dir. Consent required.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%209986>)

SPPA 9995 Master's Thesis Continuation: Half-Time (0 credits)

Fee. S/U grade assessment. Allows a student to be considered the equivalent of half-time status. Requires that the student is working more than 12 to less than 20 hours per week on their master's thesis. All six thesis credits required for the degree should be completed before registering for non-credit Master's Thesis Continuation.

Prerequisite: Cons. of SPLA M.S. dir. Consent required.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%209995>)

SPPA 9996 Master's Thesis Continuation: Full-Time (0 credits)

Fee. S/U grade assessment. Allows a student to be considered the equivalent of full-time status. Requires that the student is working 20 hours or more per week on their master's thesis. All six thesis credits required for the degree should be completed before registering for non-credit Master's Thesis Continuation.

Prerequisite: Cons. of SPLA M.S. dir. Consent required.

Level of Study: Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=SPPA%209996>)