Doctor of Philosophy in Health Sciences

Cohort: HS 12

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Program Description

The Doctor of Philosophy (PhD) in Health Sciences prepares and supports students in completing an academic terminal doctoral degree. Completing this degree can provide employment opportunities in higher education institutions, healthcare and research contexts, advanced clinical practice, and other healthcare venues. The PhD in Health Sciences is committed to developing lifelong scholars who can collaborate on and conduct, evaluate, publish, present, and integrate research into their daily academic agenda and clinical practice. We support students in pursuing leadership and service roles within their disciplines and communities. The program provides opportunities to develop effective teaching strategies to prepare the next generation of evidence-based clinicians, scholars, industry leaders, and educators in academic and healthcare programs.

By selecting a domain-specific concentration track, PhD in Health Sciences students advance their knowledge to provide evidence-based intervention and education. With expert faculty research mentorship, students have the flexibility to develop their research agenda and execute a dissertation in an area of study related to their concentration. We value RMU faculty providing guidance and a supportive structure for developing and executing the dissertation with the opportunity to work with dissertation committee members who are known experts in the field from across the United States. Students pursue their unique interests by selecting elective coursework and a dissertation direction tailored to their career aspirations and research interests.

The curriculum design and implementation allow the PhD student to maintain professional and personal work obligations while completing their degree over four years. The program consists of 5 blended semesters, with 2-5 days of Onsite immersive experiences each, and 7 completely online semesters. Teaching and learning strategies focus on supporting the distance learner with both asynchronous and collaborative learning elements. Students benefit from RMU's rich history of hybrid digital learning innovation. While immersive learning experiences on campus provide exceptional opportunities for mentorship, peer collaboration, and substantial critical feedback.

Degree Objectives

The PhD in Health Sciences Program is committed to the development of healthcare professionals who can:

- Conduct and disseminate evidence-based, sound, ethical scholarly work to contribute to the current body of scientific knowledge in their field.
- Advance oral and written communication skills sufficient to publish and present work in their field.
- Master quantitative and qualitative research methodologies.
- Develop and deliver instructional designs, assessment strategies, and curriculum based upon best practices in the scholarship of teaching and learning.
- Enhance leadership abilities, including competence in the roles of clinician, researcher, educator, and leader.
- Develop knowledge expertise in the area of dissertation interest.
- Describe and distinguish the various theories associated with the concentration area and develop advanced evidence-based practice knowledge.

Core Courses: All students are required to complete a set of core courses on subjects including evidence-based practice, research methods, teaching and learning theory, qualitative inquiry, biostatistics, and scientific writing. These courses provide the foundation for enhancing instructional knowledge, mastering the research process, and formulating a dissertation.

Concentration Courses: Students are required to select a concentration area before enrolling in the PhD program. Concentration courses provide further knowledge, skills, and abilities essential to advanced clinical practice and support research areas that are meaningful and significant to health science students. In lieu of selecting a concentration, students may elect to complete two certificate programs. If the certificate option is chosen, the student's dissertation topic must address a certificate content area. All dissertation topics must be formally approved by the Concentration Track Director and Program Administrator.

Concentrations:

- Healthcare Professions Education
- Health Promotion & Wellness
- Human & Sport Performance
- Neurologic Rehabilitation
- Orthopedic Science
- Pediatric Science (only offered in odd numbered years)

See the Concentrations section for more details about each concentration track.

Electives: Students must take 12 credits of elective courses designated as 600 or higher

within the Health Sciences.

To see the full elective listing click here.

Students also have the option to use their elective credits to receive an additional certificate as listed below:

- Emergency & Primary Care in Athletic Training (EPCAT)- 9 credits
- Health & Wellness Coaching (HWC) - 6 to 9 credits
- Healthcare Leadership & Administration (HLA) - 12 credits
- Healthcare Professions Education (HPE) - 12 credits
- Human and Sport Performance (HSPC) - 12 credits
- Rehabilitative Science (RSC) - 12 credits

Please see the certificate document for details about these certificate programs.

General Program Requirements

- Complete a minimum of 70 credit hours specific to the PhD in Health Sciences degree program.
    - 25% of graduate-level coursework can be transferred from a regionally or nationally accredited University upon approval of Program and Concentration Track Directors.
- Successfully complete qualifying examinations to advance to candidacy.
- Submit an article for publication in consultation with a mentor before advancing to the dissertation phase.
- Complete an oral dissertation proposal defense to committee members.
- Submit a dissertation manuscript for publication before completing the final oral defense.
- Complete a dissertation and successfully defend it in a final oral examination.

Program Outline & Requirements

	Course Code & Title	Credits	Semester	Format/Onsite Req
Health Sciences Core Courses				
	HS 710 Evidence-Based Practice	3	Summer	1.5 Days
	HS 712 Research Methods: A Quantitative Approach	3	Summer & Fall	1.5 Days (Summer)/10 hours synchronous (Fall)
	HS 714 Scientific/Professional Writing	1	Summer & Fall	Online
	HS 765 Manuscript & Grant Writing	3	Fall	Online
	HS 720 Survey of Qualitative Research	3	Winter	1.5 days
	HS 722 Biostatistics I	3	Winter	1.5 days
	HS 740 Teaching & Learning Theory	3	Summer	1.5 days
	HS 762 Literature Review Analysis & Synthesis	3	Winter	Online
	HS 800 Dissertation Prep I	3	Summer	1.5 days
	HS 832 Qualifying Exam Prep	3	Fall	1.5 days
	HS 810 Dissertation Prep II	3	Winter	1.5 days
	Health Sciences Core Required Credits:	**31**		
Dissertation Courses				
	HS 870A Dissertation Seminar I	3	Summer	Online
	HS 870B Dissertation Seminar II	3	Fall	Online
	HS 870 C Dissertation Seminar III	3	Winter	Online
	Dissertation Required Credits	**9**		
Research Electives				
	HS 727 Survey Research	3	Fall	Online
	HS 730 Epidemiologic Methods	3	Fall	Online
	HS 732 Biostatistics II	3	Summer	1.5 days
	HS 734 Qualitative Research II	3	Summer	1.5 days
	HS 735 Qualitative Interviewing Techniques	2	Summer	Online
	HS 736 Mixed Methods Integration	1	Summer	Online
	HS 742 Biostatistics III	3	Fall	Online
	HS 751 Case Series Single Subject Design	3	Fall	Online
	HS 770 Research Practicum§	1-3	All	Online
	Elective Research Required Credits:	**6**		
Concentration Courses				
Health Promotion & Wellness				
1	WE 700 Theories of Behavior Change	3	Fall	Online
2	WE 610 Population Health Issues	3	Summer	Online
3	WE 623 Wellness Promotion & Programming	3	Winter	Online
5	WE 630 Nutrition & Exercise for Health & Wellness	3	Summer	Online
Healthcare Professions Education				
1	HPE 760 Instructional Technology Design Theory & Application	3	Fall	Online
2	HPE 670 Learning Assessment & Evaluation	3	Summer	Online
3	HPE 752 Curriculum Design for Healthcare Professions	3	Winter	Online
4	HPE 718 Climate of High Education	3	Summer	1.5 Days

Additional concentration courses continued onto next page.

Human & Sport Performance

1	HP 620 Methods & Programming in Strength & Conditioning	3	Fall	Online
2	HP 710 Applications of Exercise Science in Tactical Fitness & Performances	3	Summer	1.5 Days
3	HP 610 Advanced Sport Performance Technology	3	Winter	Online
4	HP 714 Recovery & Regeneration	3	Summer	1.5 Days
Neurologic Rehabilitation				
1	N 720 Neuroscience Systems	3	Fall	Online
2	N 722 Clinical Neuroscience & Contemporary Motor Models	3	Summer	Online
3	N 727 Advanced Neurologic Practice I	3	Winter	Online
4	N 729 Advanced Neurologic Practice II	3	Summer	1.5 Days
Orthopedic Science				
1	OS 740 Advanced Orthopedic Evaluation & Differential Diagnosis	3	Fall	Online
2	OS 742 Advanced Practice in Biomedical Testing & Technology	3	Summer	1.5 Days
3	OS 705 Orthopedic Science Seminar	3	Winter	Online
4	OS 744 Orthopedic Surgical Considerations & Therapeutic Interventions	3	Summer	1.5 Days
Pediatric Science				
1	P 710 Pediatric Research Lab Seminar	3	Fall	Online
2	P 740 Lifespan Participation: Infancy to Adulthood	3	Summer	1.5 Days
3	P 719 Family Studies & Research Process	3	Winter	Online
4	P 704 Pediatric Genetic & Pathologic Conditions	3	Summer	1.5 Days
	Concentration Required Credits	**12**		
Elective Courses				
	Electives Required Credits:	**12**		
Total Program Required Credits: 70				

Program Calendar

Semester	Course	Credits	Onsite Dates
Semester 1 Summer 2024 *May 6-Aug. 23*	HS 710 Evidence-based Practice	3	1.5 days
	HS 712 Research Methods: A Quantitative Approach	3	1.5 days
	HS 714 Scientific/Professional Writing	1	Online
	Semester Totals:	**7**	**June**
Semester 2 Fall 2024 *Sep. 3-Dec. 20*	Elective Course 1	3	Online
	Concentration Course 1	3	Online
	Semester Totals:	**6**	**Online**
Semester 3 Winter 2025 *Jan. 6-Apr. 25*	HS 720 Survey of Qualitative Research	3	1.5 days
	HS 722 Biostatistics I	3	1.5 days
	Semester Totals:	**6**	**February**
Semester 4 Summer 2025 *May 5-Aug. 22*	HS 740 Teaching & Learning Theory	3	1.5 days
	Elective Research 1	3	1.5 days
	Concentration Course 2	3	1.5 days
	Semester Totals:	**9**	**June**
Semester 5 Fall 2025 *Sept. 2-Dec. 19*	HS 765 Manuscript & Grant Writing	3	Online
	Elective Research 2	3	Online
	Semester Total:	**6**	**Online**
Semester 6 Winter 2026 *Jan. 5-Apr. 24*	HS 762 Literature Review Analysis & Synthesis	3	Online
	Elective Course 2	3	Online
	Concentration Course 3	3	Online
	Semester Total:	**9**	**Online**
Semester 7 Summer 2026 *May 4-Aug. 21*	HS 800 Dissertation Prep I	3	1.5 days
	Concentration Course 4	3	1.5 days
	Elective Course 3	3	Online
	Semester Total:	9	**June**
Semester 8 Fall 2026 *Aug. 31-Dec. 18*	HS 832 Qualifying Exam Prep	3	Online
	Semester Total:	**3**	**Online**
Semester 9 Winter 2027 *Jan. 4-Apr. 23*	HS 810 Dissertation Prep II	3	1.5 days
	Elective Course 4	3	Online
	Semester Total:	**6**	**February**
Dissertation Phase (9 credits/3 semester minimum):			
Semester 10	HS 870A Dissertation Seminar I (Summer)	3	Online
Semester 11	HS 870B Dissertation Seminar II (Fall)	3	Online
Semester 12	HS 870C Dissertation Seminar III (Winter)	3	Online
Semester 13 to Program Completion	Residency – HS 877C, HS 877D, etc. as needed (3 credits per course/semester, all online) *Continue with 3 credits per semester until degree completion. Not included in program tuition. Forum based courses, 2 week modules.*		
	Total Program Required Credits:	**70**	
Eight-year deadline for program completion from start of program is May 3, 2029			

*COURSES FOR STUDENT SELECTION: Students must submit course selection form to Registrar's Office prior to the start of the semester in which the elective course is taken. If a student wishes to take additional elective courses, tuition for those additional courses will be charged.

Course Descriptions

Health Science Core Courses

HS 710 Evidence-Based Practice **(3 credits; 1.5 days Onsite)**
This course is designed to prepare healthcare professionals with the knowledge, skills, and abilities necessary to make independent judgments about the validity of sources of evidence. The primary focus is on critical appraisal of research, including identifying potential sources of bias and making a professional judgment of the seriousness of the risk of bias. This course will also cover the concepts of evidence-based practice with emphasis on forming answerable clinical questions and effective literature search strategies. The evaluative approach to appraising the research literature will prepare the students to critique and judge evidence based on the accuracy and validity of diagnostic tests, effectiveness of clinical interventions, prognosis for patients with health-related conditions, and chance of harm or benefit from select preventative and therapeutic factors. Within key activities and assignments, students will formulate a key clinical question, rapidly search medical and health-related databases, perform a critical appraisal of research evidence, and describe the application of the evidence.

HS 712 Research Methods: A Quantitative Approach **(3 credits; 1.5 days Onsite)**
This course provides an introduction to general research principles and research ethics. The student will be introduced to the following topics in the research process: question formulation, principles of measurement, basic design and methodological features, issues of reliability and validity, and fundamentals of conducting a literature review. A quantitative article critique will be conducted in class and outside of class. The class format will include lecture, small group discussion, and practice.

HS 714 Scientific/Professional Writing **(1 credit; Online)**
This pass/fail course reviews PubMed, Index Medicus, other search methodologies, American Psychological Association editorial format, the composition of a scientific/professional manuscript, and the style of Scientific/professional writing, its construction and formats.

HS 720 Survey of Qualitative Research **(3 credits; 1.5 days Onsite)**
This course introduces the student to qualitative research methods and their applications to problems and phenomena in healthcare. Emphasis is placed on the appropriate use and differences of qualitative methods, their philosophical underpinnings, and application to clinical issues.

HS 722 Biostatistics I **(3 credits; 1.5 days Onsite)**
The purpose of this course is to introduce the student to biostatistics, the science of evaluating information in a biological setting. Such topics as simple descriptive statistics, basic probability concepts, probability distributions (normal & binomial), sampling distributions, correlations, regression, t-tests and one-way ANOVA testing.

HS 740 Teaching & Learning Theory **(3 credits; 1.5 days Onsite)**
This course incorporates a learner centered approach to course development and instructional delivery based on the best evidence of how people learn. Students will demonstrate both traditional and innovative instructional techniques and strategies for teaching in didactic and clinical settings based upon the evidence-base of best teaching practices.

HS 762 Literature Review Analysis & Synthesis **(3 credits; Online)**
This course provides the student with skill sets to conduct a literature search, analysis and synthesis on a selected research topic complimentary of their dissertation. Research will be systematically selected based upon quality of design/methods, relevance to proposed dissertation/study instruments and linkage to research hypothesis/questions. Submission of a synthesis paper with literature summary table will be included.

HS 765 Manuscript & Grant Writing **(3 credits; Online)**
This course will provide students with opportunities to explore a variety of professional and scientific writing techniques for publication. Students will learn the best practices in the formatting, submission, and dissemination of research findings, culminating in the ability to develop and submit competitive manuscripts to peer-reviewed journals. Students will prepare an outline of a manuscript related to their dissertation based upon a chosen journal's guidelines. Additionally, an overview of the grant writing process will be presented. Variations of funding organizations, types of grant proposals, and grant writing best practices will be covered. Opportunities for grant funding for health science research, including searching for grant opportunities and developing a grant proposal, will be emphasized. *Prerequisite: HS 712*

HS 800 Dissertation Prep I **(3 credits; 1.5 days Onsite)**
The conduct of scientific inquiry requires careful planning and forethought to assure the eventual implementation of a study will successfully result in interpretable and meaningful measurements and that valid conclusions may be drawn. This course will provide students with the necessary background and experience to formulate a clearly delineated hypothesis/research question-driven dissertation prospectus that can be used to convince funding agencies and/or doctoral committees to support the study. Emphasis will be placed on developing a clear background, scientific/clinical rationale, and hypothesis/research question along with the start of a methods section and strategies to form a dissertation committee. In addition, this course will provide key information about the responsible conduct of research, the informed consent process, and the Institutional Review Board process so the student will be able to design a safe and ethical environment for their volunteer subjects. *Prerequisite: HS 762*

HS 810 Dissertation Prep II **(3 credits; 1.5 days Onsite)**
This course is a continuation of HS800 Dissertation Prep I where students will finalize their written prospectus. Students will continue securing dissertation committee commitments and be prepared to defend a mock prospectus defense via presentation while on campus. Students prepare for the Institutional Review Board process by completing the CITI Human

Subjects Research course, becoming familiar with the online submission platform, and drafting informed consent documents. *Prerequisite: HS 800*

HS 832 Qualifying Exam Prep **(3 credits; Online)**
This course is designed to assist students in the preparation for qualifying exams on core competency material and to complete the exam. The course will prepare students to develop a study strategy and plan for the exam as well as participate in discussions concerning material that comprise the exam questions.

HS 870A Dissertation Seminar I **(3 credits; Online)**
This course is designed for students to begin their dissertation project by recruiting dissertation committee members; developing a dissertation prospectus followed by the dissertation proposal (3-chapter format that includes: Introduction, Literature Review, Methods). Ideally this course concludes with the oral defense of the written dissertation proposal. Throughout this course, instructors will help students to overcome challenges and obstacles and provide strategies for accountability, time management, and dealing with project-related, personal or work-related factors that might influence dissertation progress. *Prerequisite: HS 810*

HS 870B Dissertation Seminar II **(3 credits; Online)**
This course is designed for students to develop and ideally gain approval of their dissertation IRB application and to begin collecting data as the IRB is approved. Students will discuss challenges with implementation of the research project and work with instructors and peers in mitigating challenges. Regardless of where the student is in the dissertation process, throughout this course, instructors will help students to overcome challenges and obstacles and provide strategies for accountability, time management, and dealing with project-related, personal, or work-related factors that might influence dissertation progress. *Prerequisite: HS 810*

HS 870C Dissertation Seminar III **(3 credits; Online)**
This course is designed for students to complete data collection and analysis, and to complete the dissertation manuscript. Students will discuss challenges with finalizing the research project and work with instructors and peers in mitigating challenges in manuscript writing. Regardless of where the student is in the dissertation process, throughout this course, instructors will help students to overcome challenges and obstacles and provide strategies for accountability, time management, and dealing with project-related, personal, or work-related factors that might influence dissertation progress. *Prerequisite: HS 810*

Elective Research Courses

HS 727 Survey Research **(3 credits; Online)**
This course will familiarize students with the theory, development, and application of survey research design and methods. Students will learn the principles and practices of conducting survey research, including developing psychometrically sound accounting for

and reducing sources of error, designing appropriate sampling strategies, assessing the reliability and validity of self-constructed questionnaires, administering surveys through various means, and analyzing and reporting survey research results. How to integrate qualitative inquiry with survey research to develop and conduct a mixed-method study, including writing results, will be emphasized. *Prerequisite: HS 722*

HS 730 Epidemiologic Methods **(3 credits; Online)**
This course will introduce the student to important epidemiological methodology/ concepts commonly used in evidence-based practice/medicine. The course will focus on the common observational designs, and common measures of disease frequency, risk association, and validity of diagnostic tests. The use and construction of receiver operating curves will be discussed. The course will also include an introduction into logistic regression and survival analysis methods in how they apply to disease outcomes/disorders. Students will conduct and apply basic epidemiological concepts using statistical software and learn how to design and develop. The student will be provided with information to aid in data collection and management. *Prerequisite: HS 710*

HS 732 Biostatistics II **(3 credits; 1.5 days Onsite)**
The purpose of this course is to build upon the topics introduced in Biostatistics 1. This course will cover such topics as factorial ANOVA, ANCOVA, MANOVA, multiple linear regression and non-parametric group comparisons. *Prerequisite: HS 722*

HS 734 Qualitative Research II **(3 credits; 1.5 days Onsite)**
This course is the second in a two-course sequence on qualitative research methods that extends and elaborates on the topics covered in HS 720. Major approaches used in conducting qualitative research and the application of these methods to problems and phenomena in healthcare will be examined. The emphasis of the course is on the collection, management, analysis, and interpretation of qualitative data. Exploration and application of topics such as sampling, interviewing and observation techniques, data analysis methods, and reporting of qualitative research will be addressed. Evaluation and critique of research studies utilizing qualitative methods will also be examined. *Prerequisite: HS 720*

HS 735 Qualitative Interviewing Techniques **(2 credits; Online)**
This course provides a theoretical framework for interviewing approaches for various situations, types of interviewing formats (e.g. focus group, evaluation interview, cultural interview) and development of interview formats. Recording, analyzing, and reporting interview data, ethical and relationship issues, and research on interviewing methods. *Prerequisite: HS 720*

HS 736 Mixed Methods Integration **(1 credit; Online)**
This course provides students with techniques used to integrate quantitative and qualitative data, analysis and results based upon a mixed methods study design. Writing tips of a mixed methods publication is also included. *Prerequisite: HS 720*

HS 742 Biostatistics III **(3 credits; Online)**

The purpose of this course is to build upon the topics introduced in Biostatistics 2. This course will cover such topics as logistic regression, advanced data cleaning procedures, advanced non-parametric methods, measurement tool reliability and development of data visualizations. *Prerequisites HS 722, & HS 732*

HS 751 Case Series Single Subject Design **(3 credits; Online)**
This course will seek an in-depth exploration and practice regarding the mechanics, design and construction of case series and single subject research designs in a healthcare environment. Students will develop and submit a single subject/case series research design related to individual dissertation topics or to relevant clinical questions. *Prerequisite: HS 712*

HS 770 Research Practicum **(1-3 credits; Online)**
Faculty-directed clinical, basic, or applied research practicum, which may include but not limited to review of literature preparation, human subjects committee proposal development, data collection, and presentation/manuscript preparation. Graded Pass/Fail.

Concentration Tracks

Healthcare Professions Education Concentration

Michelle L. Webb, EdD, OTD, OTR/L, CAPS
Concentration Track Director

The Healthcare Professions Education concentration track is designed to prepare students to function as academicians, researchers, and leaders in the scholarship of teaching and learning. An emphasis is placed on the application of adult learning theory and a commitment to the success of the adult learner. Students are provided with an interactive environment focusing on curriculum development and design, assessment of learning, and program evaluation for healthcare professions education. Coursework emphasizes instructional theory, experiential and inter-professional education content, education technology and curriculum development focused specifically on healthcare professions. The curriculum is intended to increase the student's abilities to utilize research theory to enhance evidence-based practices, scholarship and prepare manuscripts for publication.

The Healthcare Professions Education concentration is committed to the development of a healthcare professional who can:

- Access and critically appraise scholarly literature within health professions education.
- Critically examine and apply models and theories related to health professions education.
- Make use of scholarly literature to design evidence-informed programs related to health professions education.
- Make a scholarly contribution to the field of health professions education.

Concentration Admission Requirements
There are no additional admission requirements for this concentration other than what is required for general admission to the PhD Health Sciences degree program.

HPE 670 Learning Assessment & Evaluation **(3 credits; Online)**
This course examines a variety of assessment models and techniques used to evaluate student classroom performance, student clinical performance, instructor performance and educational programs. Students will design and execute assessment plans, interpret assessment data and develop continuous improvement plans.

HPE 718 Climate of Higher Education **(3 credits; 1.5 days Onsite)**
This course will focus on presenting and analyzing contemporary social, political and economic issues surrounding higher education and the effects these issues have on healthcare education programs. Current challenges in healthcare education programs will also be explored. Students will learn how to successfully navigate the role of a faculty member in the higher education environment. A brief history of higher education will be included.

HPE 752 Curriculum Design for the Healthcare Professions **(3 credits; Online)**
Students will learn how effective health professions curricula must integrate the basic and clinical sciences, connect didactic to experiential learning, be competency-based and time-variable, include andragogic underpinnings and approaches of delivery, and create meaningful program outcomes and assessment opportunities that verify quality and excellence. In addition timely issues such as the curricular incorporation of clinical experiences/education, the sociocultural aspects of healthcare, and pertinent accreditation issues and constraints for healthcare professions will be addressed.

HPE 760 Instructional Technology: Design, Theory, & Application **(3 credits; Online)**
This course explores the history and theory of instructional technology used in educational settings. Focus is on identifying, discussing and comparing various instructional technology utilized in the design and delivery of online, blended, and traditional classroom learning environments. Best practices of current instructional technologies applied in higher education classrooms are systematically designed, created, shared, and reviewed.

Health Promotion & Wellness Concentration

Mary Shotwell, PhD, OT/L, FAOTA
Concentration Track Director

The Health Promotion and Wellness concentration track is designed to provide students with a multidimensional exploration of wellness, including the physical, psychological, spiritual, social, and emotional aspects of well-being. A core value in health promotion and wellness is the fact that wellness is a journey rather than a destination in that all people/populations can improve health and well-being regardless of having a medical diagnosis or a disability. Students in this track come from a variety of disciplines and seek to expand their clinical practice and scholarly knowledge that goes beyond a traditional medical model. Coursework emphasizes the exploration of theories that inform practice, population health, principles of program planning in health promotion, and examination of nutrition and exercise as a foundation for well-being.

The Health Promotion and Wellness Concentration is committed to the development of a healthcare professional who can:

- Access and critically appraise scholarly literature within health promotion and wellness.
- Critically examine and apply models and theories related to health promotion and wellness.
- Make use of scholarly literature to design evidence-informed programs related to health promotion and wellness.
- Make a scholarly contribution to the field of health promotion and wellness.

<u>Concentration Admission Requirements</u>

There are no additional admission requirements for this concentration other than what is required for general admission to the PhD Health Sciences degree program.

WE 610 Population Health Issues **(3 credits; Online)**
In this course, the health issues of specific populations such as gender, race/ethnicity, and age will be discussed. Considerations of other social determinants of health, including, but not limited to, socioeconomic status, geography, and health policy factors will be covered. Health and well-being issues specific to each population will be explored through the lens of evidence-based strategies. Further, exploration of the ecological model of health promotion will be central to this course.

WE 623 Wellness Promotion & Programming **(3 credits; Online)**
This course provides the business and human rationale for wellness promotion, health education, and public health programs. Best practice for program design, implementation, and evaluation are examined as is the development and use of needs analyses, health risk assessments, and biometric measures to educate clients/patients and guide programming. Evidence based group and individual motivational strategies are included.

WE 630 Nutrition & Exercise for Health & Wellness **(3 credits; Online)**
This course includes an overview of chronic diseases and associated risk factors. The effects of behaviors in the etiology and treatment of chronic diseases are examined. Emphasis is placed on the effects of modifying behaviors such as nutrition, physical activity, sleep, smoking, and alcohol use, as well as stress reduction. The role of exercise and diet in integrative lifestyle medicine is explored. Basic skills in exercise prescription and nutritional intervention strategies within the scope of practice are developed.

WE 700 Theories of Behavior Change **(3 credits; Online)**
This course explores the principal theories of behavior that drive evidence-based practice in health/wellness education and coaching. Emphasis is placed on the determinants of group and individual behavior and behavioral economics in the context of health and wellness is included. Effective application of various theories to create education and/or interventions to alter behaviors of targeted groups or individuals is examined. Some synchronous sessions are required.

Human & Sport Performance Concentration

Michael G. Miller, PhD, EdD, CSCS*D, FNATA, FNSCA
Concentration Track Director

The Human and Sport Performance concentration track is designed to provide students with a multidisciplinary focus aimed at increasing knowledge and competency in providing evidence-based evaluation and intervention within one's disciplinary focus. An emphasis is placed on the review, critique, and implementation of the latest evidence supporting professional practice. The program values instilling clinical best practices and critical thinking skills to become competent life-long learners and educators in human and sports performance disciplines. Coursework is focused on integrating current evidence into evaluation of sport and exercise performance, modifying conditioning practices to optimize sport performance, and effectively educating patients/clients, healthcare professionals, and the public.

The Human and Sport Performance Concentration is committed to the development of a healthcare professional who can:

- Access and critically appraise scholarly literature within human sport performance.
- Critically examine and apply models and theories related to human sport performance.
- Make use of scholarly literature to design evidence-informed programs related to human sport performance.
- Make a scholarly contribution to the field of human sport performance.

<u>Concentration Admission Requirements</u>

In addition to the requirements for admission to the PhD in Health Sciences, admission to the Human and Sport Performance track will be based upon the following criteria:

1. An undergraduate or graduate degree in exercise science, strength and conditioning, human performance, biomechanics, or a related field.
2. A minimum of 1 year of professional experience as a strength and conditioning practitioner within a university/college setting, military, private or related practice completed upon applying to the PhD program.

HP 610 Advanced Sport Performance Technology (3 credits; Online)

This course will focus on technologies that have been developed to reach human interests or goals related to a particular sport. It will focus on the types, and appropriate selection and use of technology by which sport performance coaches attempt to improve training and competitive surroundings and enhance overall athletic performance. The course will provide knowledge and application of using specialized equipment and the latest modern technologies to perform tasks more efficiently, such as equipment, athletic sports gear (clothing and footwear), advanced computer stimulations and motion capture.

HP 620 Methods & Programming in Strength & Conditioning (3 credits; Online)

This course will expose students to advanced methods in various venues of strength and conditioning. Current research and practice are examined for advanced training strategies in use at different levels of competition. Students will examine different methods currently in use in the field and discussed in the literature on selected topics and demonstrate appropriate implementation of advanced training methods. Additionally, this course will

refine the students' ability to construct an advanced training program designed to enhance performance in specific ways. The student will demonstrate the ability to critically analyze and alter a training program.

HP 710 Applications of Exercise Science in Tactical Fitness & Performance **(3 credits; 1.5 days Onsite)**

This course will introduce students to the various methods and strategies for improving performance in military, law enforcement, and fire department venues. Topics such as injury prevention and tactical job preparation will be discussed with students completing applied projects in selected tactical operations. Tactical fitness research and literature will serve as the content for developing professionals capable of supporting the tactical field with evidence-based practice.

HP 714 Recovery & Regeneration **(3 credits; 1.5 days Onsite)**

This course will examine the science and history behind various advanced methods of recovery and regeneration techniques for the human body. The evidence will be reviewed in numerous topics including nutritional strategies, sleep habits, hydrotherapies, cryotherapy, sports supplementation, nutrient timing, and massage therapy. Through an evidence led approach, students will demonstrate the ability to evaluate and identify various types of fatigue, prescribe the appropriate regeneration modality, and periodize a recovery program based upon the principles learned in previous coursework.

Neurologic Rehabilitation Concentration

Kristen Johnson, PT, EdD, MS, NCS
Concentration Track Director

The Neurologic Rehabilitation concentration track is designed to provide students with an advanced understanding of rehabilitation systems and collaboration, neurologic interventions, motor control and learning, and advanced neurologic interventions through the lifespan. The curriculum builds upon each professional's clinical degree and expertise and prepares individuals to move into a clinical researcher or academician role and to evolve as a clinician through an academic perspective. Coursework emphasizes integrating current best practices into the evaluation of neurologic rehabilitation, adapting clinical practices to facilitate positive outcomes, and effectively educating patients/clients, and healthcare professionals on evidence-based practices.

The Neurologic Rehabilitation Concentration is committed to the development of a healthcare professional who can:

- Access and critically appraise scholarly literature within neurological rehabilitation.
- Critically examine and apply models and theories related to neurological rehabilitation.
- Make use of scholarly literature to design evidence-informed programs related to

neurological rehabilitation.
- Make a scholarly contribution to the field of neurological rehabilitation.

Concentration Admission Requirements

In addition to the requirements for admission to the PhD in Health Sciences, admission to the Neurological Rehabilitation track will be based upon the following criteria:

1. A professional license in physical therapy, occupational therapy, or speech-language pathology
2. A minimum of 1 year of professional neurologic rehabilitation experience completed upon applying to the PhD program.

N 720 Neuroscience Systems (3 credits; Online)

This course will focus on the structure and function of the central nervous system. It is designed to provide a survey of the functional components of the nervous system and an understanding of the functional brain at a systems level; specifically integrate aspects of neuroanatomy with physiology to allow association of brain areas with the various functions. Items to be discussed include the areas and mechanisms of the brain that process sensory and motor information. The brain's reaction to sensory input as well as the ability of the brain to adapt and change as a result of input will be highlighted. In addition, various diseases/injuries will be explored to provide an understanding of normal and pathophysiological brain function.

N 722 Clinical Neuroscience & Contemporary Motor Models (3 credits, Online)

This course will serve to review, update, and synthesize evidence from the neurosciences as a foundation for clinical practice, as well as explore the fundamental principles, limitations, and clinical implications of the theories of motor control and motor learning influencing clinical practice. It will include the incorporation of constructs from motor learning and motor control theories into therapeutic intervention for individuals with a variety of movement problems resulting from neurological dysfunctions. Trends in models of service delivery: medical, educational, community, and social models, will be analyzed and approached from a modern evidence-based perspective.

N 727 Advanced Neurologic Practice Part I (3 credits; Online)

This course will focus on comprehensive management of individuals with stroke, traumatic brain injury, brain tumor, and neurodegenerative health conditions. The pathophysiology, pharmacology, and imaging will be used to design evidence-based interventions, grounded in the International Classification of Functioning, Disability, and Health (ICF) framework, that foster advanced clinical decision making for prediction, prevention, plasticity, and participation in neurorehabilitation practice.

N 729 Advanced Neurologic Practice Part II (3 credits; 1.5 days Onsite)

This course will focus on the comprehensive management of individuals with spinal cord injury, demyelinating, and vestibular health conditions. The pathophysiology, pharmacology, and imaging will be used to design evidence-based interventions, grounded in the International Classification of Functioning, Disability, and Health (ICF)

framework, that fosters advanced clinical decision making for prediction, prevention, plasticity, and participation in neurorehabilitation practice. *Prerequisite: N 727.*

Orthopedic Science Concentration

Erin Miller, PhD, LAT, ATC
Concentration Track Director

The Orthopedic Science concentration track is designed to provide students with advanced orthopedic knowledge, skills, and abilities in advanced musculoskeletal evaluation, differential diagnosis, innovative biomedical technology, current assessment tools, pre-/post-surgical considerations, novel therapeutic interventions, biologics, and higher-order critical reasoning. This multi-disciplinary concentration provides an opportunity to develop advanced science-driven orthopedic scholars who lead, conduct research, treat, and serve as academicians on the cutting edge of evidence-based practice. Coursework emphasizes integrating current best practices into the evaluation of musculoskeletal rehabilitation, utilizing research to facilitate positive outcomes, and effectively educating patients/clients, and healthcare professionals on evidence-based practices.

The Orthopedic Science concentration is committed to the development of a healthcare professional who can:

- Access and critically appraise scholarly literature within orthopedic science.
- Critically examine and apply models and theories related to orthopedic science.
- Make use of scholarly literature to design evidence-informed programs related to orthopedic science.
- Make a scholarly contribution to the field of orthopedic science.

<u>Concentration Admission Requirements</u>
In addition to the requirements for admission to the PhD in Health Sciences, admission to the Orthopedic Science track will be based upon the following criteria:

1. A professional license in physical therapy, athletic training, occupational therapy, or physician assistant
2. A minimum of 1 year of professional orthopedic experience completed upon applying to the PhD program.

OS 705 Orthopedic Sciences Seminar **(3 credits; Online)**
The seminar course will assist students to acclimate, familiarize, and become knowledgeable around their intended dissertation topic. Students will engage in literature review and on-going discussions to facilitate knowledge and understanding of their specific content area as it relates to their dissertation. A manuscript submission for publication is the capstone of this course that starts with Multilevel Systems in Orthopedic Sports Science.

OS 740 Advanced Orthopedic Evaluation & Differential Diagnosis **(3 credits; Online)**
This course is an advanced evidence-based diagnosis and screening course designed to facilitate highly effective clinical evaluation and accurate diagnostic decisions in orthopedic care. Advanced concepts of probability-based differential diagnosis and clinical reasoning strategies related to orthopedic practice will be presented. Current evidence of evaluation techniques and diagnostic tests for common orthopedic conditions will be explored and critically appraised. Pathology of the major body systems and regions will be described with current evidence-based practice diagnostic and screening standards.

OS 742 Advanced Practice in Biomedical Testing & Technology **(3 credits; 1.5 days Onsite)**
This course will focus on exploring the ever-growing number of biomedical tests, tools, and technologies marketed for utilization along the continuum of orthopedic practice. The psychometric properties, appropriateness, and clinical utility, including validity, reliability, responsiveness, sensitivity and specificity of tools, tests, and technologies will be explored. Current evidence-based testing and technology recommendations and their application to various patient populations and orthopedic settings will be presented. Students will engage in a variety of independent and collaborative learning activities to critically appraise the evidence for the use of tools, tests and technologies for enhanced decision making in orthopedic clinical care. Students will gain knowledge, skills and abilities in the utilization and implementation of select novel specialized biomedical technologies in orthopedics to include markerless 3-Dimensional motion capture.

OS 744 Orthopedic Surgical Considerations & Therapeutic Interventions **(3 credits; 1.5 days Onsite)**
This course takes a learner-centered approach to enhance knowledge, skills, and abilities related to orthopedic surgical patient care. In this course, students develop advanced skills in the critical appraisal and the application of orthopedic surgical research findings. Current evidence-based surgical techniques and their implications on tissue healing, pre-and post-surgical rehabilitation, return to daily living/activity timelines and short and long-term patient outcomes will be presented. Students will engage in various independent and collaborative learning activities to critically appraise the evidence for surgical patient management from direct-access indications for imaging referral to pre-operative therapeutic care and discharge. Students will bring it all together by choosing a common surgical procedure and developing an up-to-date, evidence-based post-surgical rehabilitation protocol.

Pediatric Science Concentration

Jane Sweeney, PT, PhD, MS, PCS, FAPTA
Concentration Track Director

The Pediatric Science Concentration is designed to provide students with an advanced ability to conduct research related to children or families and to teach in academic and clinical settings. This program involves faculty from varied Universities sharing

interdisciplinary expertise in pediatrics and participating in dissertation research committees. Academic teaching, scientific writing, and professional leadership development are highlighted throughout the program. Coursework options include pediatric research lab seminar, therapeutic intervention analyses from infancy through adolescence, family studies, and pediatric global health approaches. The central element of the program is the development and completion of a dissertation that incorporates child and / or family research and advances knowledge in pediatric science.

The Pediatric Science concentration is committed to the development of a healthcare professional who can:

- Access and critically appraise scholarly literature within pediatric science.
- Critically examine and apply models and theories related to pediatric science.
- Make use of scholarly literature to design evidence-informed programs related to pediatric science.
- Make a scholarly contribution to the field of pediatric science.

Concentration Admission Requirements

In addition to the requirements for admission to the PhD in Health Sciences, admission to the Pediatric Science track will be based upon the following criteria:

1. A professional license in physical therapy, occupational therapy, or speech-language pathology
2. A minimum of 1 year of professional pediatric clinical experience completed upon applying to the PhD program.

P 704 Pediatric Pathological & Genetic Conditions: Analysis & Interventions **(3 credits; 1.5 days Onsite)**

Overview and evidence-based practice analyses are presented on etiology, pathophysiology, clinical course, and key pediatric therapy management issues. Family dynamics and stressors are addressed in the context of trauma-informed care and grief processes.

P 710 Pediatric Research Lab Seminar **(3 credits; Online)**

Explore research team and lab setting: conduct site visit(s) to a research lab and present post-site visit reflection and analysis; investigate feasibility of study settings and methods for infant or child participants; identify strategies for adapting research procedures for children (motivation, endurance, and safety); review options for study participant recruitment and consent; obtain designs of recruitment brochures and flyers; identify topic(s), potential settings, content experts, and methods for dissertation-related pilot study; attend research team meeting.

P 719 Family Studies & Research Process **(3 credits; Online)**

Multiple topics are analyzed on family system theories, theoretical frameworks of family development and functioning, extrinsic and intrinsic factors influencing family functioning, and ecological / transactional models of child development. Concepts of family assessment, family-centered care, culture, stress, and coping are included. A synthesis paper is

submitted involving literature analysis and application to a pediatric therapy and family topic. Research questions, variables, and conceptual mapping are discussed.

P 740 Lifespan Participation: Infancy to Adulthood **(3 credits; 1.5 days Onsite)**
Complex integration of mobility, sensory processing, & communication are analyzed in children to age 21 years. Using the cerebral palsy model, these three major processes are explored in the context of promoting or limiting participation in daily life. Case analyses and research evidence are used to examine effects and interaction of the following factors: pathomechanics, developmental kinesiology, sensory processing, respiration – communication, fatigue, pain, and resiliency.

Faculty

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