Doctor of Science in Health Science

Athletic Training

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Curriculum

The vision of Rocky Mountain University of Health Professions (RMUoHP) is to become widely recognized for excellence in healthcare education. The Doctor of Science (DSc) in Health Science with concentration areas in Athletic Training, Clinical Electrophysiology, Health Promotion and Wellness, Human & Sport Performance, and Neurologic Rehabilitation prepare and support students to complete an academic terminal doctoral degree which can provide opportunities for employment in institutions of higher education, healthcare and research clinics, hospital settings and other healthcare venues. The DSc in Health Sciences prepares stewards of healthcare disciplines.

Each concentration is committed to the development of lifelong scholars who can conduct, evaluate, publish, present and integrate research findings into their daily academic agenda and/or clinical practice; act in leadership roles in their discipline and community; provide the highest level of intervention to their patients/clients; and participate in undergraduate and graduate education environments to effectively teach the next generation of evidence-based clinicians, scholars and educators in academic and healthcare programs.

The program is designed for practitioners and educators to continue professional work obligations during the program while attending eight semesters of didactic work followed by qualifying exams and completion of a dissertation. The dissertation emphasizes the application of scientific principles related to the application of evaluation, intervention and research of clinically related issues of inquiry seen in healthcare and education. Dissertation committee members are known experts in the field from across the United States with members of the RMUoHP faculty providing guidance and support.
Degree Objectives
The DSc in Health Science Program is committed to the development of the healthcare professional who can:

- Conduct and disseminate evidence-based sound, ethical, cost-effective scholarship;
- Make significant and relevant contributions to the current body of scientific knowledge in the discipline;
- Develop knowledge expertise in the area of dissertation interest;
- Develop and deliver instructional designs, strategies and curriculum based upon best practices in the scholarship of teaching and learning;
- Influence ethical and legal management of healthcare through education of providers, consumers, and society at large;
- Enhance leadership abilities, including competence in the roles of clinician, researcher, educator, and leader;
- Describe and distinguish the various theories associated with the concentration area and develop advanced evidence-based practice knowledge.

Curriculum
Core Courses: All students are required to complete a set of core research courses including evidence-based practice, quantitative and qualitative inquiry, biostatistics, epidemiology as well as required theory courses. These courses provide the foundation for the dissertation phase and research process.

Concentration Courses: Students are required to select a concentration area before enrolling in the DSc program. Concentration courses provide further knowledge, skills and abilities essential to advanced clinical practice and support research areas students often pursue.

Concentrations:
- Athletic Training
- Clinical Electrophysiology
- Health Promotion & Wellness
- Human & Sport Performance
- Neurologic Rehabilitation
- Pediatric Science

Admission Requirements
1. A master’s or professional practice degree beyond the baccalaureate from an accredited college or university.
2. Grade point average of 3.2 (on a 4.0 scale) on all work completed during the Master’s or professional practice degree (i.e., DPT, PA).
3. Possess writing and oral communication skills sufficient to conduct and deliver the results of meaningful research. Must submit an essay that includes current personal, intellectual and professional interests and why the student is applying to the degree program.
4. Submit a current Curriculum Vitae.
5. Possess information technology skills sufficient to effectively participate in RMUoHP’s DSc program and effectively conduct research.
6. Have successfully completed, with a grade of B- or better, at least one course in Research Methods or Statistics at the Master’s or higher level.
7. Prefer a minimum of one (1) year in clinical practice.
*Exceptions to these criteria will be considered on a case-by-case basis with consultation of the concentration director.

Concentration – Athletic Training
The doctoral program in athletic training prepares scientific scholars and stewards of the discipline who can function as clinicians, researchers and/or academicians. Graduates can become leaders in the athletic/sports healthcare community through the completion of the doctoral program. The curriculum combines a rehabilitation science core with an adult learning theory emphasis. The central element of the program is the completion of a dissertation that incorporates clinical or education research and advances knowledge in the area of athletic training. Evidence-based practice, quantitative and qualitative research, biostatistics, epidemiology and professional writing courses provide a complimentary foundation. The curriculum is intended to increase the student’s abilities to utilize research theory to enhance evidence-based practices and to prepare manuscripts for publication. Advanced therapeutic intervention courses enhance the student’s abilities in the assessment and implementation of sound scientific principles in the treatment of athletes and other physically active individuals. The adult learning emphasis affords students an interactive environment focusing on the designing and assessment of learning for athletic training education. Education coursework includes instructional design/delivery, assessment of learning, curriculum development, education technology, and higher education administration.

The program is designed to enable athletic trainers to continue professional work obligations during the didactic portion of the program while completing eight semesters, consisting of online and blended course work. Students engage in readings, assignments, threaded discussions, group activities well as attend on campus face-to-face interaction with peers and mentors in a traditional classroom setting. During the blended terms students travel to campus for 4-6 days of immersion experiences. Courses noted “Online” have no on-site days allotted. For all courses, students complete coursework throughout the entire semester. A written qualifying examination and dissertation are required following the didactic portion of the curriculum.

The DSc Health Science academic terminal degree athletic training program is committed to the development of an individual who can:
- Integrate current literature and evidence-based practices through a systematic review and critical analysis approach into various therapeutic interventions and preventative measures for physically active patients in various age groups and activity levels.
- Analyze, critique, and synthesize literature to prepare manuscripts for publication
- Analyze, critique, and synthesize evidence and apply to clinical practices.
- Conduct independent, methodologically sound research.
- Collect and critically analyze research data.
- Design learner-centered instruction and instructional delivery skills based upon evidence-based practices of the scholarship of teaching and learning.
- Integrate curriculum/leadership theory into professional teaching and administrative practices that guide and direct CAATE accredited programs.
- Provide leadership to the profession/community through stewardship of the profession.

*Eligibility Requirements
1. Current Board of Certification for the Athletic Trainer credential

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**Program Module Calendar**

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<th>Semester</th>
<th>Start Date</th>
<th>On-site Dates</th>
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<td>Semester 1</td>
<td>May 2, 2016</td>
<td>June 8-12, 2016</td>
<td>August 19, 2016</td>
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<td>Fall 2016</td>
<td>August 29, 2016</td>
<td>ONLINE</td>
<td>December 16, 2016</td>
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<td>Semester 3</td>
<td>January 9, 2017</td>
<td>February 9-12, 2017</td>
<td>April 28, 2017</td>
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<td>Semester 4</td>
<td>September 5, 2017</td>
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<td>Sum 2017</td>
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<td>Eight-year deadline from start of program is May 2, 2024</td>
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Student must register for Residency Credit (CC 877A, CC 877B, etc.) each semester until dissertation is completed & minimum credit requirement for program is attained.

Eight-year deadline from start of program is May 2, 2024
HS 710  Evidence-based Practice  (3 credits; 2 days On-site)
This course is designed to prepare healthcare professionals with the knowledge, skills and abilities necessary to make independent judgments about the validity of clinical research and to implement evidence-based clinical practice in their careers. This course will focus on 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 judge the evidence on: 1) the accuracy and validity of diagnostic tests and the application of important diagnostic tests in the care of a specific patient; 2) the effectiveness of clinical interventions; 3) the natural history of health-related conditions; 4) risk of harm from select preventative and therapeutic interventions. Based on presentation of case scenarios, students will be required to formulate the key question(s), rapidly search medical and health-related databases, appraise the evidence with a critical analysis and describe application of the evidence in a clinical context. Instructor: Jennifer McKeon, PhD, ATC, CSCS

HS 712  Research Methods: A Quantitative Approach  (3 credits; 2 days On-site)
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. Instructor: Douglas Powell, PhD, CSCS, TASC-F

HS 714  Scientific/Professional Writing  (1 credit; Online)
This pass/fail course reviews PubMed, Index Medicus, other search methodologies, American Medical Association Manual of Style editorial format, the composition of a scientific/professional manuscript, and the style of Scientific/professional writing, its construction and formats. Instructor: Lori Thein Brody, PhD, PT, SCS, ATC
Semester 2
(5 credits)

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HS 760 Instructional Technology (2 credits; Online)
This course identifies, explores, and practices the use of instructional technology in the design and delivery of online, blended, and traditional classroom learning environments. Best practices for online and blended course design and strategies for online instructional delivery will be discussed. Current instructional technologies utilized in the 21st century higher education classroom will be systematically design, created, shared, and reviewed. Instructor: Jan Reese, MS

AT 640 Connective Tissue and Injury Repair: An Evidence Based Approach (3 credits; Online)
This course provides an evidence based approach to connective tissue injury including degenerative processes, healing, and rehabilitation implications. Understanding of the relationships among connective tissues such as bone, ligaments, cartilage, capsule, tendon and muscle on a micro and macro level will be emphasized. Sports injuries, issues of aging, and rehabilitation principles in special populations will also be included. These principles will be applied to treatment procedure choices in rehabilitation and preventative training. Instructor: Lori Thein Brody, PhD, PT, SCS, ATC

Semester 3
(6 credits)

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HS 720 Survey of Qualitative Research (3 credits; 2 days On-site)
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. Instructor: Angela R. Merlo, PT, DPT, PhD

HS 722 Biostatistics 1 (3 credits; 2 days On-site)
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, and an introduction to t-distributions will be covered. Instructor: Tom Cappaert, PhD, ATC, CSCS

Content and dates are subject to change.
Semester 4
(6 credits)

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COURSES FOR STUDENT SELECTION: Students must submit course selection form to registrar prior to the start of Semester 4. Choose one of the following two courses:

**HS 732  Biostatistics 2** (3 credits; Online)
The purpose of this course is to build upon the topics introduced in Biostatistics 1. This course will cover such topics as interval estimation, confidence intervals, hypothesis tests, and one and two-sample t-tests. Prerequisite: HS 722. Instructor: Tom Cappaert, PhD, ATC, CSCS

OR

**HS 734  Qualitative Research 2** (3 credits; Online)
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. Instructor: Angela R. Merlo, PT, DPT, PhD

**AT 618  Preventative Measures** (3 credits; Online)
This course will expose students to contemporary topics in athletic training clinical practice such as, mild brain injury, environmental illnesses and musculoskeletal injury. Students will examine and synthesize current research on these topics and present evidence-based preventative measures in order to curb their incidence. Instructor: Kim Peer, EdD, FNATA

Semester 5
(9 credits)

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**HS 730  Epidemiologic Methods** (3 credits; 2 days On-site)
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

Content and dates are subject to change.
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. Instructor: Jason Brumitt, PhD, AT, PT, CSCS

HS 752 Curriculum Development (2 credits; Online)
This course examines various classical and modern curriculum theorists as they apply curriculum development. Emphasis is placed on congruence between institutional mission, philosophy, and goals; professional standards; and needs and expectations of a program’s communities of interest. Students design a curriculum to meet the needs of a stated role and setting. Instructor: Kristen Johnson, EdD, PT

AT 631 Motor Control and Movement Analysis (3 credits; 2 days On-site)
Discussion and analysis of scientific principles related to the mechanical understanding of motor control and the human body in motion. Review of related literature and research in motor learning and control. The focus of this course will be on qualitative analysis of motor assessment as related to musculoskeletal assessment and physiotherapy interventions. Instructor: Kathryn B. Schwartzkipf-Phifer, DPT, OCS, CSCS and Kyle Matsel PT, DPT, SCS, CSCS

 Semester 6 (8 credits)

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AT 652 Extensive Therapeutic Exercise (3 credits; 2 days On-site)
This course will explore the current best evidence related to the continuum of athlete care associated with rehabilitation and return to play decision-making. Evidence-based injury rehabilitation will be instructed through a system of screening, testing, and assessment, as well as a progressive continuum of fundamental movements. The system will serve to guide corrective exercise intervention strategies to restore optimal movement patterns. Students will be exposed to injury prediction/prevention research and gain clinical skills in performance of the Functional Movement Screen, Y Balance Test along with discussing a neurodevelopmental model for corrective exercise progressions. Critical thinking will be emphasized, allowing students to compare and contrast core training program with an emphasis in the motor control model of spinal stabilization. Students will work together to develop return to sport models that build on the basics but also focus on movement constructs that will minimize future injury risk. Instructor: Kathryn B. Schwartzkipf-Phifer, DPT, OCS, CSCS and Kyle Matsel PT, DPT, SCS, CSCS
HS 740  Teaching and Learning Theory  (3 credits; 2 days On-site)
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. Instructor: Malissa Martin, EdD, ATC

HS 800  Dissertation Prep I  (2 credits; 1 day On-site)
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. Instructor: Brent Alvar, PhD, CSCS*D, RSCC*D, FNSCA, FACSM

Semester 7  
(8 credits)

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HS 727  Survey Mixed Methods Research  (3 credits; 1 day onsite)
This course will familiarize students with theory and application of survey research design and methods with integration of a mixed methods approach. Students will learn the principles and practices of conducting survey research including: accounting for and reducing sources of error, designing appropriate sampling strategies, assessing the reliability and validity of self-constructed questionnaires and interview protocols, administering surveys through various means and analyzing and reporting results of survey research. How to integrate qualitative inquiry with survey research to develop and conduct a mixed method study including writing results will be emphasized. Instructor: TBA

AT 617  Evidence-based Advanced Therapeutic Interventions  (3 credits; 1.5 days On-site)
This course provides an advanced analysis of how to search for and appraise published reports on therapeutic modalities and tissue healing. Students will acquire advanced knowledge and skill in interpreting the medical literature to make informed decisions regarding the best therapeutic modality applications, procedures, and protocols to use for individual patients. Instructor: Kirk Armstrong, PhD, ATC
AT 670  Learning Assessment and Evaluation  (3 credits; 1.5 days On-site)
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. Instructor: Scott
Heinerichs, EdD, LAT, ATC

Semester 8
(4 credits)

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HS 810  Dissertation Prep II  (1 credit; 1 day On-site)
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 C00I Human Subjects Research course, becoming familiar with the
online submission platform, and drafting informed consent documents. Instructors: Brent
Alvar, PhD, CSCS*D, RS0C*0, FNSCA, FACSM; Malissa Martin, EdD, ATC

AT 718  Climate of Higher Education  (3 credits; 2 days On-site)
This course will focus on presenting and analyzing contemporary social, political and
economic issues surrounding higher education and the effects these issues have on
health professions 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. Instructor: Malissa Martin, EdD, ATC

Dissertation Phase
(Eight-year deadline from start of program to complete degree)
(12-credit minimum)

Each doctoral student will be required to complete a dissertation that is evidence-based and
involves applied research of experimental, nonexperimental, or descriptive designs. Examples
of dissertations include: small randomized control trials; single-case/subject designs, quasi-
experimental designs, qualitative methods, survey research, epidemiological designs (cross-
sectional, cohort or case-control) normative research, and correlational designs.

In 9th semester students will complete comprehensive exams
CC 833A  Doctoral Dissertation 1 – Semester 9  (6 credits)
CC 833B  Doctoral Dissertation 2 – Semester 10  (6 credits)

Semesters of Dissertation Residency Credit (CC 877A, CC 877B, etc.) as needed

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