Curriculum

The vision of Rocky Mountain University of Health Professions (RMUoHP) is to advance the quality, delivery and efficacy of healthcare. The Doctor of Science (DSc) in Health Science with clinical concentration areas in Athletic Training, Clinical Electrophysiology, Health Promotion and Wellness, and Pediatric Science develops evidence-based clinician-scientists with advanced clinical skills who can critically evaluate the literature and participate in the research process through identification of best practice in the concentration area and apply that to independent clinical research.

The core and concentration courses are designed to enhance clinical, research, teaching, and leadership skills. The program is designed for practitioners to continue professional work obligations during the program while attending six semesters of didactic work followed by completion of a dissertation. The dissertation will emphasize the application of scientific principles related to the application of evaluation, intervention and research of clinical problems seen in healthcare.

The purpose of the DSc in Health Science program is to prepare professionals from healthcare related fields as master clinicians, researchers, leaders, and educators. The program provides students with the ability to make contributions by publishing in peer-reviewed journals and/or presenting research at professional conferences. Students planning to enter an academic career will learn skills for effective teaching in academic healthcare programs.

Degree Objectives

The DSc in Health Science Program is committed to the development of the healthcare professional who can:
• Conduct and disseminate clinically sound, ethical, cost-effective research;
• Make significant and relevant contributions to the current body of scientific knowledge in the discipline;
• Develop knowledge expertise in the area of dissertation interest;
• 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.

Concentration – Athletic Training

The post-professional program in athletic training combines a rehabilitation science core with a pedagogy emphasis. The central element of the program is the completion of a dissertation that incorporates clinical research and advances knowledge in the area of athletic training. Quantitative and qualitative research, biostatistics, and professional writing courses provide a complimentary foundation. The curriculum is designed to increase the student’s abilities to utilize research theory to enhance evidence-based practices and to prepare manuscripts for publication. Advanced therapeutic exercise 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 pedagogy emphasis affords students an interactive environment focusing on the designing of learning for athletic training education. Education coursework includes instructional design/delivery, assessment of learning, curriculum development, and higher education administration.

The program is designed to enable athletic trainers to continue professional work obligations during the two-year didactic portion of the program while completing six semesters, each consisting of three modules of coursework. Modules 1 and 3 may include readings and assignments, as well as On-line participation (i.e., threaded discussions or chats). Module 2 in each semester requires attendance on campus for lecture, demonstration, etc. The number of on-site days for each course is course dependent. Courses noted “Online” have no 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 post professional athletic training program is committed to the development of an individual who can:

• Integrate current literature and evidence-based practices into assessment and therapeutic intervention plans for athletes and other physically active individuals.
• Analyze, critique, and synthesize literature to prepare manuscripts for publication and to apply to clinical practices.
• Conduct methodologically sound clinical research.
- Collect and critically analyze research data.
- Develop learner-centered instruction and instructional delivery skills based upon evidence-based practices.
- Integrate curriculum/leadership theory into professional teaching and administrative practices.

**Program Module Calendar**

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<th>Semester</th>
<th>Start Date</th>
<th>On-site Dates</th>
<th>End Date</th>
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<tr>
<td><strong>Semester 1</strong>&lt;br&gt;Sum 2013</td>
<td>May 6, 2013</td>
<td>May 28-June 2, 2013</td>
<td>August 22, 2013</td>
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<td><strong>Semester 2</strong>&lt;br&gt;Fall 2013</td>
<td>September 3, 2013</td>
<td>Oct. 18-23, 2013</td>
<td>December 19, 2013</td>
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<td><strong>Semester 3</strong>&lt;br&gt;Winter 2014</td>
<td>January 6, 2014</td>
<td>No On-site Session</td>
<td>April 25, 2014</td>
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<td><strong>Semester 4</strong>&lt;br&gt;Sum 2014</td>
<td>May 5, 2014</td>
<td>June 11-16, 2014</td>
<td>August 22, 2014</td>
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<td><strong>Semester 5</strong>&lt;br&gt;Fall 2014</td>
<td>September 2, 2014</td>
<td>No On-site Session</td>
<td>December 19, 2014</td>
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<td><strong>Semester 6</strong>&lt;br&gt;Win 2015</td>
<td>January 5, 2015</td>
<td>February 20-26, 2015</td>
<td>April 24, 2015</td>
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<tr>
<td><strong>Semester 7</strong>&lt;br&gt;Sum 2015</td>
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<td>CC 833A</td>
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<td><strong>Semester 8</strong>&lt;br&gt;Fall 2015</td>
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<td>CC 833B</td>
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<td><strong>Residency</strong></td>
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<td>Student must register for Residency Credit (CC 877A, CC 877B, etc.) each semester until dissertation is completed &amp; minimum credit requirement for program is attained.</td>
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Content and dates are subject to change.
Semester 1
(9 credits)

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**HS 710 Evidence-based Practice** (2 credits)
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: Steve Allison, PhD, PT

**HS 712 Introduction to 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: Tim Flynn, PhD, PT

**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, ATC

**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: Scott Shaffer, PhD, PT

Semester 2
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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: TBA

**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

**AT 650.2 Extensive Therapeutic Exercise 1** (3 credits; 2 days On-site)
This course will be taught from an evidence-based perspective and serve to advance students’ clinical skills related to the musculoskeletal rehabilitation process of common sports-related dysfunction. The student will learn in-depth application of systematic movement assessment and advanced clinical problem solving for therapeutic exercise prescription. Critical thinking will be emphasized allowing students to compare and contrast protocol-based vs. criteria-based rehabilitation approaches of the extremities while emphasizing the current best evidence related to the concept of regional interdependence. **Prerequisite:** CC 644. Instructor: Phil Plisky, PT, DSc, OCS, ATC, CSCS

Semester 3
(9 credits)

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**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. Instructor: Mark Paterno, PhD, PT

**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: Tim Speicher, PhD, ATC, LAT, CSCS, PRT-c.

**COURSES FOR STUDENT SELECTION:** Students must submit course selection form to registrar prior to the start of Semester 3. 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 advanced ANOVA, ANCOVA, MANOVA and non-parametric analysis techniques. Prerequisite: HS 722. Instructor: Tom Cappaert, PhD, ATC

**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: TBA
Semester 4
(9 credits)

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**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

**AT 617 Evidence-based Advanced Therapeutic Interventions**  
(3 credits; 2 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. Prerequisite: CC 644. Instructor: Christine Lauber, EdD, ATC

**AT 651.2 Extensive Therapeutic Exercise 2**  
(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: Robert Butler, DPT, PhD
Semester 5
(7 credits)

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**HS 750 Leadership and Policy in Healthcare** (3 credits; Online)
This course examines ways to synthesize theoretical leadership concepts with personal and professional values embedded in a clinical practice environment. Issues of power, innovation, working with teams, change and leadership/healthcare delivery models are addressed. Themes of self-reflection, self-mastery, and interpersonal skills are explored. Instructor: Marie-Eileen O’Nieal, PhD, RN.

**HS 800 Proposal Writing** (2 credits; Online)
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-driven research proposal that can be used to convince funding agencies and/or doctoral committees to support the study. In addition, this course will provide key information about the Institutional Review Board process so that the student will be able to assure a safe and ethical environment for their volunteer subjects. Instructor: Brent Alvar, PhD, CSC

**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: Leamor Kahanov, EdD, ATC

Semester 6
(10 credits)

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**HS 760 Technology and Informatics** (3 credits; 1 day On-site)
This course is designed for the advanced clinician to explore major existing and emerging technologies and their potential impact on health care and health care education. Systems are addressed that support patient centered, safe, effective, timely, efficient and equitable care. An emphasis is placed on
the role that information technology supports these systems and on
development and use of technologies in 21st century healthcare/education.
Current technology used for online/blended and face to face learning
experiences will be analyzed and discussed. Instructor: TBA

**AT 670 Learning Assessment and Evaluation**  (3 credits; 2 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: Instructor: TBA

**AT 718.3 Higher Education Administration**  (3 credits; 2 days On-site)
This course will focus on analyzing the roles of faculty and administration in
preparing the healthcare educator for leadership roles. Program accreditation
is explored. Students will learn how to navigate the role of an administrator
and faculty member in the higher education environment. Instructor: Malissa
Martin, EdD, ATC/L

**HS 810 Dissertation Prep/Proposal Defense**  (1 credit; 2 days On-site)
This course will prepare students for the dissertation phase of the degree
program. Students will have secured a committee and have developed an
outline of their dissertation topic prior to taking the course. Students will
prepare and present their dissertation proposal to their peers and a panel of
experts. Feedback will be provided and students will work with their
committee to submit the final dissertation proposal.

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**Dissertation Phase**

*(Eight-year deadline from start of program is 2021)*

*(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.

**CC 833A  Doctoral Dissertation 1** – Semester 7  (6 credits)
**CC 833B  Doctoral Dissertation 2** – Semester 8  (6 credits)

*Semesters of Dissertation Residency Credit (CC 877A, CC 877B, etc.) as needed*
DSc-HS Program Faculty

Steve Allison, PhD, PT
Brent Alvar, PhD
Lori Thein Brody, PhD, PT, AT
Tom Cappaert, PhD, ATC
Tim Flynn, PhD, PT
Leamor Kahanov, EdD, ATC
Christine Lauber, EdD, ATC
Malissa Martin, EdD, ATC
Marie-Eileen Onieal, PhD, RN
Mark Paterno, PhD, PT
Phil Plisky, DSc, PT, OCS, ATC, CSCS
Scott Shaffer, PhD, PT
Tim Speicher, PhD, ATC, LAT, CSCS, PRT-c