Doctor of Science in Health Science
Athletic Training

ROCKY MOUNTAIN UNIVERSITY of HEALTH PROFESSIONS

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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 clinical concentration areas in Athletic Training, Clinical Electrophysiology, Health Promotion and Wellness, and Human and Sport Performance 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 and educators to continue professional work obligations during the program while attending eight to ten 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.

Curriculum

Core Courses: All students are required to complete research methods/biostatistics courses as well as required theory courses. These courses provide the foundation for the concentration courses and the research process.

Concentration Courses: Students are required to select a concentration area before enrolling in the DSc program. Concentration courses are generally in the specific area of the research that the student will pursue.

Concentrations:

- Athletic Training
- Clinical Electrophysiology
- Health Promotion & Wellness
- Human & Sport Performance

Admission Requirements

1. A Master's degree from an accredited college or university.
2. Have a grade point average of 3.4 (on a 4.0 scale) on all work completed during the Master's degree.
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 Vita.
5. Possess information technology skills sufficient to effectively participate in RMUoHP's DSc program.
6. Possess information technology skills sufficient to effectively conduct research.
7. 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.

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 and assessment 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 didactic portion of the program while completing eight 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

	Start Date	On-site Dates	End Date
Semester 1 Sum 2015	May 4, 2015	May 28-June 1, 2015	August 21, 2015
Semester 2 Fall 2015	August 31, 2015	*ONLINE*	December 18, 2015
Semester 3 Win 2016	January 4, 2016	February 21-24, 2016	April 22, 2016
Semester 4 Sum 2016	May 2, 2016	*ONLINE*	August 19, 2016
Semester 5 Fall 2016	August 29, 2016	October 6-9, 2016	December 16, 2016
Semester 6 Win 2017	January 9, 2017	February 10-14, 2017	April 28, 2017
Semester 7 Sum 2017	May 8, 2017	June 9-12, 2017	August 25, 2017
Semester 8 Fall 2017	September 5, 2017	November 2-5, 2017	December 22, 2017
Semester 9 Winter 2018	Dissertation	CC 833A	
Semester 10 Summer 2018		CC 833B	
Residency		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 4, 2023			

Semester 1

(7 credits)

Start Date	On-site Dates	End Date
May 4, 2015	May 28-June 1, 2015	August 21, 2015

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; Pat McKeon, PhD, ATC, CSCS

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: Shane Koppenhaver, PhD, PT, OCS, FAAOMPT

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)

Start Date	On-site Dates	End Date
Aug 31, 2015	*ONLINE*	December 18, 2015

HS 760 Technology and Informatics **(2 credits; Online)**

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: Rod Hicks, PhD, RN; 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)

Start Date	On-site Dates	End Date
January 4, 2016	February 21-24, 2016	April 22, 2016

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

Semester 4

(9 credits)

Start Date	On-site Dates	End Date
May 2, 2016	*ONLINE*	August 19, 2016

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

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: Matt Kutz, PhD, ATC

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

Semester 5

(6 credits)

Start Date	On-site Dates	End Date
August 29, 2016	October 6-9, 2016	December 16, 2016

HS 730 Epidemiologic Methods **(3 credits; 1.5 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 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

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; Michael Lehr, DPT, CSCS

Semester 6

(8 credits)

Start Date	On-site Dates	End Date
January 9, 2017	February 10-14, 2017	April 28, 2017

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; Michael Lehr, DPT, 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 Proposal Writing **(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-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, CSCS*D, RSCC*D, FNSCA, FACSM

Semester 7

(8 credits)

Start Date	On-site Dates	End Date
May 8, 2017	June 9-12, 2017	August 25, 2017

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. Instructor: Kirk Armstrong, PhD, ATC

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: Mary Barnum, EdD, ATC

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 8

(4 credits)

Start Date	On-site Dates	End Date
September 5, 2017	November 2-5, 2017	December 22, 2017

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 CITI Human Subjects Research course, becoming familiar with the online submission platform, and drafting informed consent documents. Instructor: Brent Alvar, PhD, CSCS*D, RSCC*D, FNSCA, FACSM; Malissa Martin, EdD, ATC

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

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

DSc-AT Program Faculty

Brent Alvar, PhD, CSCS*D, RSCC*D, FNSCA, FACSM
Kirk Armstrong, PhD, ATC
Mary Barnum, EdD, ATC
Lori Thein Brody, PhD, PT, SCS, ATC
Jason Brumitt, PhD, AT, PT, CSCS
Tom Cappaert, PhD, ATC, CSCS
Rod Hicks, PhD, RN
Leamor Kahanov, EdD, ATC
Shane Koppenhaver, PhD, PT, OCS, FAAOMPT
Matt Kutz, PhD, ATC
Michael Lehr, DPT, CSCS
Malissa Martin, EdD, ATC
Jennifer McKeon, PhD, ATC, CSCS
Pat McKeon, PhD, ATC, CSCS
Angela R. Merlo, PT, DPT, PhD
Jan Reese, MS
Kathryn B. Schwartzkipf-Phifer, DPT, OCS, CSCS
Tim Speicher, PhD, ATC, LAT, CSCS, PRT-c