REHABILITATION SCIENCE (RHBS)

300 Level Courses

RHBS 340: Health, Disease and Dysfunction. 3 credits.
Focuses on basic epidemiology, health promotion and disease prevention, as well as impairments in normal function of the individual resulting in disease and dysfunction. Exploration of the individual and societal impact of health and disease. Introduces current rehabilitation and intervention strategies as well as classification of disease and disability. Offered by Rehabilitation Science. Limited to three attempts.

Schedule Type: Lecture

Grading:
This course is graded on the Undergraduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

RHBS 345: Applied Biomechanics in Rehabilitation. 3 credits.
Introduces basic concepts and principles of biomechanics in the study and analysis of functional human movement. Discusses the biomechanical principles as applied in both healthy and clinical populations. Develops an understanding of the scientific and clinical applications of biomechanics to rehabilitation interventions. Offered by Rehabilitation Science. Limited to three attempts.

Recommended Prerequisite: RHBS 270 and RHBS 271 or equivalent courses in human anatomy and physiology.

Schedule Type: Lecture

Grading:
This course is graded on the Undergraduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

RHBS 350: Clinical Physiology and Human Performance. 3 credits.
Investigates the study of human physiology and how it relates to physical activity, health, and functional ability. Specifically, examines the metabolic, locomotive, endocrine, cardiovascular, and pulmonary responses to physical activity and their contributions and limitations to human performance. Offered by Rehabilitation Science. Limited to three attempts.

Recommended Prerequisite: College level physics or permission of instructor.

Schedule Type: Lecture

Grading:
This course is graded on the Undergraduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

RHBS 375: Gait and Functional Movement Analysis. 3 credits.
Analyzes human gait and common structural impairments associated with functional performance. Provides the fundamental terminology, techniques, and data interpretation methods used in gait analysis and assessing human physical function. Offered by Rehabilitation Science. Limited to three attempts.

Recommended Prerequisite: RHBS 270 and RHBS 271 or similar courses in human anatomy and physiology.

Schedule Type: Lecture

Grading:
This course is graded on the Undergraduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

RHBS 380: Neural Basis of Movement. 3 credits.
Introduces major topics in sensory and motor neurophysiology as they relate to motor control and motor learning. Includes organization of sensory and motor systems, neural mechanisms of learning and memory, and current neurophysiological testing techniques. Special emphasis is placed on the implications for motor impairment and recovery following nervous system disease or injury. Offered by Rehabilitation Science. Limited to three attempts.

Recommended Prerequisite: RHBS 270 and RHBS 271 or equivalent anatomy and physiology course.

Schedule Type: Lecture

Grading:
This course is graded on the Undergraduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

RHBS 390: Clinical Assessment of Functional Capacity. 3 credits.
Examines the scientific basis and theory for exercise assessments in healthy persons and those with chronic disease and disability. Covers cardiorespiratory fitness measurements, cardiac function, body composition, muscular strength and endurance. Offered by Rehabilitation Science. Limited to three attempts.

Recommended Prerequisite: Undergraduate course in anatomy and physiology or permission of instructor.

Schedule Type: Lecture

Grading:
This course is graded on the Undergraduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

400 Level Courses

RHBS 415: Clinical Movement Science I. 3 credits.
Describes how the human nervous and musculoskeletal systems work together to move the human body, with special emphasis on movement disorders and disabilities. Topics include movement and motion principles, muscle force production, physiology, and adaptation, along with the measurement of muscle activity, body movements, and body forces. Offered by Rehabilitation Science. Limited to three attempts.

Recommended Prerequisite: College-level physics or permission of instructor or department chair.

Schedule Type: Lecture

Grading:
This course is graded on the Undergraduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

RHBS 416: Clinical Movement Science II. 3 credits.
Describes how the human nervous and musculoskeletal systems work together to move the human body, with a special emphasis on movement disorders and disabilities. Topics include movement control, adaptation, and learning; experimental and clinical assessment of body movements and forces, treatment of abnormal movement, and
rehabilitation technologies. Offered by Rehabilitation Science. Limited to three attempts.

**Recommended Prerequisite:** RHBS 415 or permission of instructor or department chair.

**Schedule Type:** Lecture

**Grading:**
This course is graded on the Undergraduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

**RHBS 418: Exercise Endocrinology.** 3 credits.
Explores the role of the endocrine system in the coordination and regulation of the body's internal environment under acute and chronic exercise conditions. Offered by Rehabilitation Science. Limited to three attempts.

**Recommended Prerequisite:** RHBS 270 and RHBS 271 or similar course in human anatomy and physiology.

**Schedule Type:** Lecture

**Grading:**
This course is graded on the Undergraduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

**RHBS 420: Adult Health and Function.** 3 credits.
Approaches the study of function and normal development, how it is attained and how it is optimized with a multi-systems viewpoint. Focuses on the components of functional movement. Addresses strategies for assessing, promoting and maintaining functional independence. Highlights current treatment approaches of disease and dysfunction. Offered by Rehabilitation Science. Limited to three attempts.

**Schedule Type:** Lecture

**Grading:**
This course is graded on the Undergraduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

**RHBS 430: Advanced Functional Clinical Assessments.** 3 credits.
Examines the theory behind functional assessments used in those with chronic diseases and/or disability. Current measures used to assess function in clinical populations will be performed and discussed. Established clinical and research measures will also be examined and conducted. Offered by Rehabilitation Science. Limited to three attempts.

**Registration Restrictions:**
**Required Prerequisites:** RHBS 390C or 390XS.

- C Requires minimum grade of C.
- XS Requires minimum grade of XS.

**Schedule Type:** Lecture

**Grading:**
This course is graded on the Undergraduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

**RHBS 450: Psychosocial Adaptation in Rehabilitation.** 3 credits.
Examines the psychosocial impacts of rehabilitation and disability. Provides a disability perspective from the individual and society and explores the interaction between them. Offered by Rehabilitation Science. Limited to three attempts.

**Recommended Prerequisite:** Completed RHBS 201 or permission of instructor.

**Schedule Type:** Lecture

**Grading:**
This course is graded on the Undergraduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

**RHBS 455: Research in Rehabilitation Science.** 3 credits.
Describes central principles of scientific method and ethical and regulatory responsibilities of rehabilitation science researchers. Explores application of scientific method in basic, interventional, clinical and translational research. Develops ability to read literature critically and make appropriate scientific inferences. Introduces basics of grant writing. Offered by Rehabilitation Science. Limited to three attempts.

**Mason Core:** Capstone (http://catalog.gmu.edu/mason-core/)

**Specialized Designation:** Writing Intensive in Major

**Recommended Prerequisite:** STAT 250 or equivalent.

**Registration Restrictions:**
Enrollment is limited to students with a class of Senior.

Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.

**Schedule Type:** Lecture

**Grading:**
This course is graded on the Undergraduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

**RHBS 489: Introduction to Clinical Research.** 1 credit.
Provides students with a basic understanding of what clinical research is and the scientific principles on which it is based. Starts with a historical perspective on clinical research and then goes on to explore the following topics: purpose of clinical research, ethical and regulatory implications of clinical research, and the roles and responsibilities of all parties involved in clinical research. Offered by Rehabilitation Science. Limited to three attempts.

**Recommended Prerequisite:** Course is open to honors college students only or by permission of instructor.

**Schedule Type:** Seminar

**Grading:**
This course is graded on the Undergraduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

**RHBS 490: RS: Clinical Research Internship.** 3 credits.
Practical experience in a clinical research setting under the direction of a mentor. Each student is required to work with an experienced clinical investigator who agrees to provide the trainee mentorship. Clinical research embraces a spectrum of scientific disciplines that use a variety of study methods. Therefore, the multidisciplinary approach to clinical research is emphasized during didactic interactions. Note: In addition, an application must be submitted in the semester prior to enrollment in the course. During the semester prior to entry, students may be asked to acquire certain competencies/certifications in order to fully participate at their research site (for example, human subjects research protections
training, lab safety certification, HIPAA training). Offered by Rehabilitation Science. Limited to three attempts.

**Specialized Designation:** Research/Scholarship Intensive

**Recommended Prerequisite:** Course is open to honors college students only.

**Schedule Type:** Internship

**Grading:**
This course is graded on the Undergraduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

**RHBS 491:** Directed Research. 1-3 credits.
Engages students in a directed research project under the guidance of a faculty member. Offered by Rehabilitation Science. May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Permission of the instructor.

**Schedule Type:** Independent Study

**Grading:**
This course is graded on the Satisfactory/No Credit scale. (http://catalog.gmu.edu/policies/academic/grading/)

### 600 Level Courses

**RHBS 606:** Clinical Exercise Physiology. 3 credits.
Examines acute and chronic alterations and adaptations associated with exercise and training. Covers role of exercise therapy in preventing and rehabilitating from disease across lifespan. Particular emphasis on role of exercise therapy in cardiorespiratory, musculoskeletal, and metabolic diseases. Offered by Rehabilitation Science. May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**Grading:**
This course is graded on the Graduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

**RHBS 650:** Foundations of Rehabilitation Science. 3 credits.
Examines the field of rehabilitation science with emphasis on the core theories and models of this emerging discipline. Surveys various topics within rehabilitation science including the history and development of the field, assistive technologies, pathology and impairment research, functional limitations research, disability research, translational research, and ethical considerations in clinical and research settings. Offered by Rehabilitation Science. May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

**Schedule Type:** Seminar

**Grading:**
This course is graded on the Graduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

**RHBS 651:** Research Design and Methods I. 3 credits.
Explores quantitative and qualitative research methods, principles and techniques necessary for implementation of health science research. Offered by Rehabilitation Science. May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**Grading:**
This course is graded on the Graduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

**RHBS 652:** Research Design and Methods II. 3 credits.
Explores advanced experimental and quasi-experimental research methods frequently utilized in rehabilitation research. Develop theoretical and practical knowledge necessary to conduct independent

**Recommended Prerequisite:** Course is open to honors college students only.
This course is graded on the Graduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

**RHBS 711: Applied Physiology II.** 3 credits.
Explores general systemic function. A detailed study of physiology for graduate students interested in health and human movement, chronic illness, and disability. Covers cardiovascular, pulmonary, gastrointestinal, renal, and reproductive systems. Offered by Rehabilitation Science. May not be repeated for credit.

**Recommended Prerequisite:** RHBS 710.

**Registration Restrictions:**
Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**Grading:**
This course is graded on the Graduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

**RHBS 720: Principles of Clinical Trials.** 3 credits.
Provides a practical overview of the fundamental principles of clinical trial design and management, ethical and regulatory factors in the conduct of clinical trials, and their role in clinical practice, public health and decision making. Topics include clinical trial design, biostatistics, ethics and regulatory affairs, study management and oversight, and current concepts. Offered by Rehabilitation Science. May not be repeated for credit.

**Recommended Prerequisite:** Graduate level statistics/methods

**Registration Restrictions:**
Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**Grading:**
This course is graded on the Graduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

**RHBS 740: Applied Physiology: Cardiorespiratory.** 3 credits.
Explores general systemic function. A detailed study of physiology for graduate students interested in health and human movement, chronic illness, and disability. Covers cardiovascular, pulmonary, gastrointestinal, renal, and reproductive systems. Offered by Rehabilitation Science. May not be repeated for credit.

**Recommended Prerequisite:** RHBS 606, EFHP 610, RHBS 710 or other graduate physiology course, plus one of the following: two-semester course sequence in anatomy and physiology (100 level or above) or one course in animal or comparative physiology (300 level or above) or one course in human physiology (300 level or above).

**Registration Restrictions:**
Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

Grading:
This course is graded on the Graduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

RHBS 745: Metabolic Basis of Disability. 3 credits.
Examines anatomy and physiology of organs and systems involved in regulating metabolism; assesses relationships among hormonal and central nervous system regulation in the production and regulation of energy. Offered by Rehabilitation Science. May not be repeated for credit.

Recommended Prerequisite: RHBS 710

Registration Restrictions:
Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

Grading:
This course is graded on the Graduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

RHBS 746: Movement Control and Learning. 3 credits.
Describes how the human nervous and musculoskeletal systems work together to move the human body, with a special emphasis on movement disorders and disabilities. Topics include movement and motion principles, muscle force production, physiology, and adaptation, along with the measurement of muscle activity, body movements, and body forces. Offered by Rehabilitation Science. May not be repeated for credit.

Recommended Prerequisite: RHBS 710

Registration Restrictions:
Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

Grading:
This course is graded on the Graduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

RHBS 750: Physiology of Clinical Exercise Interventions. 3 credits.
Critiques current knowledge of exercise prescription in both healthy and clinical populations. Examines physiological effects of exercise interventions, with emphasis on chronic disease and disability. Offered by Rehabilitation Science. May not be repeated for credit.

Recommended Prerequisite: RHBS 606

Registration Restrictions:
Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

Grading:
This course is graded on the Graduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

RHBS 754: Movement Disorders: Etiology, Assessment, and Analyses. 3 credits.
Applies concepts of neuromechanics to the assessment and analysis of normal and pathological movement using both existing clinical assessments and laboratory-based measures of body kinematics, kinetics, muscle activity, and perception/cognition interactions with movement. Discusses benefits and limitations of assessment and analysis techniques as well as current research with regard to advancing these techniques. Offered by Rehabilitation Science. May not be repeated for credit.

Recommended Prerequisite: RHBS 746

Registration Restrictions:
Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

Grading:
This course is graded on the Graduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

RHBS 772: Applied Biomechanics in Rehabilitation. 3 credits.
Describes concepts and principles of biomechanics for the study and analysis of functional human movement within the scope of rehabilitation science. Describes the biomechanical principles as applied in both healthy and clinical populations. Develops an understanding of the scientific and clinical applications of biomechanics to rehabilitation interventions. Offered by Rehabilitation Science. May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

Grading:
This course is graded on the Graduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

RHBS 776: Movement Analysis of Function. 3 credits.
Applies biomechanical principles to record and analyze functional activities, including walking, sit-stand, and reaching. Focuses on data acquisition, processing, and compiling of kinematic and kinetic data.
including motion capture, center of pressure, and electromyography. Evaluates movement from a joint, total body, and muscular perspective related to performance. Addresses how age and injuries affect functional performance. Offered by Rehabilitation Science. May not be repeated for credit.

**Registration Restrictions:**
- Enrollment is limited to Graduate or Non-Degree level students.
- Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**Grading:**
This course is graded on the Graduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

### 800 Level Courses

**RHBS 816: Rehabilitation Efficacy and Effectiveness Research.** 3 credits.
Examines the theory and methods of comparative effectiveness studies and their relationship to developing Rehabilitation Science and other disciplines to effect better clinical practice by identifying benefits/harms of prevention and treatment and explores the implications of evidence for comparative effectiveness in developing health care policy. Offered by Rehabilitation Science. May not be repeated for credit.

**Registration Restrictions:**
- Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.
- Enrollment is limited to Graduate level students.

**Schedule Type:** Seminar

**Grading:**
This course is graded on the Graduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

**RHBS 894: Special Topics in Rehabilitation Science.** 3 credits.
In-depth study of contemporary topics in Rehabilitation Science. Course topics vary each semester. Notes: Students may take up to 9 credits of RHBS 894 with permission of program director. Offered by Rehabilitation Science. May be repeated within the term for a maximum 9 credits.

**Specialized Designation:** Topic Varies

**Registration Restrictions:**
- Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.
- Enrollment is limited to Graduate level students.

**Schedule Type:** Lec/Sem #1, Lec/Sem #2, Lec/Sem #3, Lec/Sem #4, Lec/Sem #5, Lec/Sem #6, Lec/Sem #7, Lec/Sem #8, Lec/Sem #9, Sem/Lec #10, Sem/Lec #11, Sem/Lec #12, Sem/Lec #13, Sem/Lec #14, Sem/Lec #15, Sem/Lec #16, Sem/Lec #17, Sem/Lec #18, Seminar

**Grading:**
This course is graded on the Graduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

### 900 Level Courses

**RHBS 940: Independent Study.** 1-6 credits.
In-depth study of selected area of rehabilitation science under the direction of faculty. Offered by Rehabilitation Science. May be repeated within the degree for a maximum 24 credits.

**Registration Restrictions:**
- Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.
- Enrollment is limited to Graduate level students.

**Schedule Type:** Independent Study

**Grading:**
This course is graded on the Satisfactory/No Credit scale. (http://catalog.gmu.edu/policies/academic/grading/)

**RHBS 960: Directed Research.** 1-6 credits.
Research on a pertinent topic in rehabilitation science. Must be arranged with instructor before registering. Offered by Rehabilitation Science. May be repeated within the term for a maximum 24 credits.

**Specialized Designation:** Topic Varies

**Registration Restrictions:**
- Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.
- Enrollment is limited to Graduate level students.

**Schedule Type:** Independent Study

**Grading:**
This course is graded on the Satisfactory/No Credit scale. (http://catalog.gmu.edu/policies/academic/grading/)

**RHBS 998: Doctoral Dissertation Proposal.** 1-9 credits.
Work on research proposal that forms basis for doctoral dissertation. Offered by Rehabilitation Science. May be repeated within the degree for a maximum 9 credits.

**Recommended Prerequisite:** Advancement to PhD candidacy.

**Registration Restrictions:**
- Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.
- Enrollment is limited to students with a class of Advanced to Candidacy.

**Schedule Type:** Dissertation

**Grading:**
This course is graded on the Satisfactory/No Credit scale. (http://catalog.gmu.edu/policies/academic/grading/)

**RHBS 999: Dissertation Research.** 1-9 credits.
Dissertation research on a specific topic under the direction of a faculty member. Offered by Rehabilitation Science. May be repeated within the degree for a maximum 24 credits.

**Registration Restrictions:**
- Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.
Enrollment is limited to Graduate level students.

**Schedule Type:** Dissertation

**Grading:**
This course is graded on the Satisfactory/No Credit scale. (http://catalog.gmu.edu/policies/academic/grading/)