REHABILITATION AND MOVEMENT SCIENCE, DOCTOR OF PHILOSOPHY (PH.D.) WITH A CONCENTRATION IN EXERCISE PHYSIOLOGY [COLLEGE OF HUMANITIES AND SCIENCES]

Program goal
The Ph.D. in Rehabilitation and Movement Science is an interdisciplinary degree program developed through a collaborative partnership of the departments of Kinesiology and Health Sciences, Physical Therapy, and Physical Medicine and Rehabilitation. The mission of this collaborative degree program is to prepare applied scientists capable of approaching multifaceted health care, preventive medicine and rehabilitation initiatives from an integrative perspective and to prepare graduates to assume research, teaching and leadership positions within rehabilitation and movement science professions.

There are two program concentrations: exercise physiology and neuromusculoskeletal dynamics. The exercise physiology concentration prepares individuals to conduct research, direct external funding initiatives and teach in the area of exercise physiology, with particular focus on physical activity's impact on chronic disease states. The neuromusculoskeletal dynamics concentration prepares individuals for research, teaching and clinical initiatives associated with the identification and rehabilitation of movement disorders.

Student learning outcomes
At the completion of the program students will:

1. Demonstrate comprehensive foundational knowledge within his/her area of program specialization
2. Develop testable hypotheses and appropriate study designs to address relevant research questions in his/her area of program specialization
3. Develop the skills and abilities to collect and manage research data while ensuring ethical and responsible conduct of research
4. Develop the ability to analyze research data and subsequently interpret and synthesize results and draw appropriate conclusions
5. Demonstrate teaching effectiveness in the classroom and/or clinical environment
6. Disseminate research findings effectively in oral and/or written formats

Graduate and Movement Science, Doctor of Philosophy (Ph.D.) with a concentration in exercise physiology [College of Humanities and Sciences]
Admission requirements

<table>
<thead>
<tr>
<th>Degree</th>
<th>Semester(s) of entry</th>
<th>Deadline dates</th>
<th>Test requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ph.D.</td>
<td>Fall preferred</td>
<td>Applications received prior to Jan. 9 will be given priority consideration. Applications received following the deadline may be considered if space and resources are available.</td>
<td>GRE</td>
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</tbody>
</table>

In addition to the general admission requirements of the VCU Graduate School (http://bulletin.vcu.edu/graduate/study/admission-graduate-study/admission-requirements), applicants must:

1. Have completed at least one of a master's degree in a related area, 30 hours of post-baccalaureate work (e.g. course work at 500 level or greater) or a first-professional degree program
2. Provide official GRE score
3. Submit a curriculum vitae or professional resume indicating an applicant's educational and career experience as well as evidence of research potential

Admission decisions are made only on the basis of a completed application packet.

Applicants being considered for admission must complete an interview with a Ph.D. admissions committee representative and/or research faculty member with whom the student would like to work.

Degree requirements

In addition to general VCU Graduate School graduation requirements (http://bulletin.vcu.edu/academic-regs/grad/graduation-info), students pursuing the Ph.D. in Rehabilitation and Movement Science must successfully complete:

1. A minimum of 50 credit hours developed in conjunction with their advisers
2. Written and oral comprehensive examinations
3. All other university requirements of qualification for degree candidacy
4. Written dissertation based on a focused line of research
5. Oral defense of the dissertation

Curriculum requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 543</td>
<td>Statistical Methods I</td>
<td>3</td>
</tr>
<tr>
<td>or BIOS 543</td>
<td>Graduate Research Methods I</td>
<td></td>
</tr>
<tr>
<td>STAT 544</td>
<td>Statistical Methods II</td>
<td>3</td>
</tr>
<tr>
<td>or BIOS 544</td>
<td>Graduate Research Methods II</td>
<td></td>
</tr>
<tr>
<td>Select one of the following:</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>ALHP 761</td>
<td>Health Related Sciences Research Design</td>
<td></td>
</tr>
</tbody>
</table>

EDUS 710  Quantitative Research Design
HADM 761  Health Services Research Methods I
HEMS 600  Introduction to Research Design in Health and Movement Sciences
PSYC 636  Research Methods in Developmental Psychology

Select one additional research design class of above or of the following: 3

ALHP 716  Grant Writing and Project Management in Health Related Sciences
BIOS 531  Clinical Epidemiology
BIOS 553  Biostatistical Methods I
BIOS 571  Clinical Trials
BIOS 572  Analysis of Biomedical Data I
SBHD 610  Behavioral Measurement

Core concentration

PHIS 501  Mammalian Physiology 5
REMS 701  Advanced Exercise Physiology I 3

Select one of the following: 3

REMS 703  Cardiovascular Exercise Physiology
REMS 704  Psychobiology of Physical Activity
REMS 705  Metabolic Aspects of Physical Activity

Approved electives (from list below) 7

LABORATORY ROTATIONS

REMS 710  Research Techniques in Rehabilitation and Movement Science 3

PROFESSIONAL DEVELOPMENT COURSE WORK

REMS 690  Research Seminar in Rehabilitation and Movement Science (5 credit-hour course repeated for a total of 3 credits) 3
REMS 793  Teaching Practicum in Higher Education 1
REMS 794  Research Presentation Seminar 1

DISSERTATION RESEARCH

REMS 798  Research in Rehabilitation and Movement Science 12

Total Hours 50

Approved electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>BIOL 524</td>
<td>Endocrinology</td>
<td>3</td>
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<tr>
<td>HEMS 610</td>
<td>Laboratory Techniques in Rehabilitation Science</td>
<td></td>
</tr>
<tr>
<td>HEMS 675</td>
<td>Clinical Exercise Physiology</td>
<td>3</td>
</tr>
<tr>
<td>PHTX 614</td>
<td>Foundation in Psychoneuroimmunology</td>
<td>3</td>
</tr>
<tr>
<td>REMS/HEMS 660</td>
<td>Neuromuscular Performance</td>
<td>3</td>
</tr>
<tr>
<td>REMS 692</td>
<td>Independent Study</td>
<td>1-3</td>
</tr>
<tr>
<td>REMS 702</td>
<td>Advanced Exercise Physiology II</td>
<td>3</td>
</tr>
<tr>
<td>REMS 703</td>
<td>Cardiovascular Exercise Physiology</td>
<td>3</td>
</tr>
<tr>
<td>REMS 704</td>
<td>Psychobiology of Physical Activity</td>
<td>3</td>
</tr>
<tr>
<td>REMS 705</td>
<td>Metabolic Aspects of Physical Activity</td>
<td>3</td>
</tr>
</tbody>
</table>

Total graduate credit hours required (minimum) 50

Graduate program director
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