Doctor of Philosophy in Exercise and Nutrition Sciences

The doctor of philosophy in Exercise and Nutrition Sciences prepares future scholars and industry experts to teach and mentor students, lead research and development, and create knowledge relating to the impacts of exercise/physical activity and nutrition on human health and function. This program builds on the MS program in Exercise and Nutrition Sciences at MSU, or related MS degrees from other institutions. The program will leverage expertise of exercise science program faculty and nutrition sciences program faculty and established collaborations with other STEM researchers and programs at MSU to deliver the following doctoral options: 1) exercise nutrition, metabolism, and physiology, and 2) biomechanics and motor control. These applied science options build on the foundational sciences of biochemistry, cellular and molecular biology, anatomy, physiology, physics, and mathematics. The program requires a minimum of 60 credits, including a minimum of 18-28 credits of dissertation and consideration of up to 21 non-research credits from a master’s degree. Coursework for both options focuses on core content for exercise and nutrition sciences, research design and statistical analyses, and advanced coursework specific to each option. Additionally, each student will develop an academic portfolio that includes research (presentations, peer-reviewed publications, grant writing) and teaching (development of course materials, instruction, student mentoring).

Exercise Nutrition, Metabolism, and Physiology Curriculum

18-28 cr of Kin 690 Dissertation credit

Take at least 3 of the following classes:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>KIN 515</td>
<td>Exercise Performance and Nutrition</td>
<td>3</td>
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<td>KIN 594</td>
<td>Seminar</td>
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<td>KIN 525</td>
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</tr>
<tr>
<td>NUTR 421</td>
<td>Macronutrient Metabolism</td>
<td>3</td>
</tr>
<tr>
<td>NUTR 511</td>
<td>Exercise Metabolism and Health</td>
<td>3</td>
</tr>
<tr>
<td>NUTR 520</td>
<td>Advanced Diet and Disease Systems</td>
<td>3</td>
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Take at least 2 of the following classes:

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<td>Biostatistical Data Analysis</td>
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<tr>
<td>BCH 524</td>
<td>Mass Spectrometry</td>
<td>3</td>
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<tr>
<td>BCH 544</td>
<td>Molecular Biology</td>
<td>3</td>
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<td>BCH 545</td>
<td>Proteins</td>
<td>3</td>
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<tr>
<td>BCH 546</td>
<td>Metabolomics and Systems Biology</td>
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<tr>
<td>BIOB 524</td>
<td>Ethical Practice of Science</td>
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<tr>
<td>BIOE 540</td>
<td>Analysis of Ecological Communities</td>
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<tr>
<td>CHTH 540</td>
<td>Principles of Epidemiology</td>
<td>3</td>
</tr>
<tr>
<td>MB 505</td>
<td>Host-Associated Microbiomes</td>
<td>4</td>
</tr>
<tr>
<td>MB 520</td>
<td>Microbial Physiology</td>
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Total Credits: 60

Up to 30 credits from the above list at MSU or equivalent from another university may be considered for credit toward the PhD.

Biomechanics/Motor Control Curriculum

Option 1: Master's and PhD at MSU (5 years to complete PhD)

Existing MS in Exercise and Nutrition Sciences (2 years)

Total MS program: 35 credits; considered for credit toward PhD: 18-21 credits.

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<tr>
<td>HHD 512</td>
<td>Research Methods in HHD II</td>
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</tr>
<tr>
<td>KIN 515</td>
<td>Exercise Performance and Nutrition</td>
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<tr>
<td>KIN 590</td>
<td>Master’s Thesis</td>
<td>1-10</td>
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<tr>
<td>KIN 594</td>
<td>Seminar</td>
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Electives: 3

PhD in Exercise and Nutrition Sciences (3 years)

Required Core: 24 - 34 credits

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Coursework (program developed in consultation with Chair): 5 - 18 credits

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<td>KIN 592</td>
<td>Independent Study</td>
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Total Credits: 60

Option 2: Master's done elsewhere, start directly into PhD (3-4 years depending on prior coursework)

12-21 credits considered for credit toward the PhD (exact courses to be transferred for credit determined by department)

PhD in Exercise and Nutrition Sciences (3-4 years) 39-48 credits

Required Core: 24 - 34 credits

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Coursework (program developed in consultation with Chair) 5 - 24 credits

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**Total Credits** 60