**Curriculum: Doctoral Specialization in Applied Physiology**

All PhD students in the Applied Physiology Division are required to fulfill the equivalent of the existing MS program with an emphasis in Applied Physiology or a closely related field. Core courses that fulfill this equivalent could include:

*Introductory Biostatistics*
*Advanced Exercise Physiology I & II*

Students applying for the Doctoral Specialization in Applied Physiology should have successfully completed undergraduate biology (I & II), chemistry (I&II), and anatomy and physiology (I&II). Additionally, completed coursework in organic chemistry and biochemistry are recommended.

Students will complete an approved program of study consisting of 60 hours beyond the baccalaureate or a minimum of 30 hours beyond the master of science from an exercise related department. These hours include dissertation (EXSC 899; 12hr), research seminar hours (EXSC 783; 5hr), and independent study (EXSC 790; up to 9 hr) in addition to course work to meet the hour requirement. The plan of study is developed between the student and their advisor, and then approved by division faculty and the graduate director. All students are required to complete course hours as follows:

- Exercise Science (12-18 hours)
- Research/Statistical methods (6-12 hours)
- Electives (18-30 hours)
- Dissertation (12 hours)

In consultation with their advisor, each student is to develop a cognate of emphasis, and electives should be related to this area of specialization. Students can develop a specialization in many areas including but not limited to immunology, cell biology, cancer, endocrinology, neuroscience, cardiovascular physiology, nutrition, and skeletal muscle physiology. In addition to coursework, all Applied Physiology doctoral students are expected to be heavily involved in ongoing research in the Division of Applied Physiology during their time in the academic program.
Sample Applied Physiology: Course Options

**Exercise Science**
- EXSC 620 – Nutrition and Immunology
- EXSC 666 – Cardiorespiratory Exercise Physiology
- EXSC 669 – Skeletal Muscle Physiology: Form & Function
- EXSC 700 – Exercise and Public Health
- EXSC 755 – Selected Topics in Exercise Science (3)
- EXSC 777—Endocrinology in Exercise and Health (3)
- EXSC 783 – Seminar in Exercise Science (*1hr, repeatable up to 5 hr*; required)
- EXSC 785 – Advanced Exercise Physiology Laboratory (3)
- EXSC 790 – Independent Study in Exercise Science (*6 - 12hr total*)
- EXSC 880 - Myology and Exercise Science (3)
- EXSC 881 - Advanced Cardiorespiratory Exercise Physiology (3)
- EXSC 883 - Physical Activity, Chronic Disease, and Disabilities (3)

**Immunology/Microbiology**
- MBIM 710 – Basic & Clinical Immunobiology
- MBIM 720 - Comprehensive Microbiology
- BMSC 702 - Medical Cell Biology I

**Chemistry**
- CHEM 751 - Biosynthesis of Macromolecules (3)
- CHEM 752 - Regulation & Integration of Metabolism (3)
- CHEM 753 - Enzymology and Protein Chemistry (3)

**Pharmacology**
- PHPH 705 - Biomedical Pharmacology (6)

**Neuroscience/Psychology**
- PSYC 560 - Advanced Physiological Psychology (3)
- PHPH 750 – Fundamental Neuroscience I

**Physiology**
- PHPH 701 - Physiology for Health Sciences (6)