### EXERCISE PHYSIOLOGY (EXPH)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Schedule Type</th>
<th>Prerequisite:</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXPH 50612</td>
<td>EXERCISE LEADERSHIP FOR THE OLDER ADULT</td>
<td>3</td>
<td>Combined Lecture and Lab</td>
<td>Graduate standing, EXPH 55080, and graduate standing.</td>
</tr>
<tr>
<td>EXPH 51000</td>
<td>EXERCISE IMPLEMENTATION: AN EXERCISE INTERVENTION PROGRAM</td>
<td>1-3</td>
<td>Laboratory</td>
<td>Graduate standing.</td>
</tr>
<tr>
<td>EXPH 53093</td>
<td>VARIABLE TITLE WORKSHOP IN EXERCISE SCIENCE AND EXERCISE PHYSIOLOGY</td>
<td>1-3</td>
<td>Workshop</td>
<td>Graduate standing.</td>
</tr>
<tr>
<td>EXPH 55040</td>
<td>ADVANCED STRENGTH AND CONDITIONING</td>
<td>3</td>
<td>Lecture</td>
<td>Graduate standing.</td>
</tr>
<tr>
<td>EXPH 55065</td>
<td>EXERCISE TESTING</td>
<td>3</td>
<td>Combined Lecture and Lab</td>
<td>Graduate standing.</td>
</tr>
<tr>
<td>EXPH 55070</td>
<td>ELECTROCARDIOGRAPHY FOR THE EXERCISE PHYSIOLOGIST</td>
<td>3</td>
<td>Lecture</td>
<td>Graduate standing; and special approval.</td>
</tr>
<tr>
<td>EXPH 55080</td>
<td>PHYSIOLOGY OF EXERCISE</td>
<td>3</td>
<td>Lecture</td>
<td>Graduate standing.</td>
</tr>
<tr>
<td>EXPH 60610</td>
<td>PHYSIOLOGY OF AGING: IMPLICATIONS FOR HUMAN BEHAVIOR</td>
<td>3</td>
<td>Lecture</td>
<td>Graduate standing.</td>
</tr>
<tr>
<td>EXPH 63050</td>
<td>RESEARCH PROCESS IN ATHLETIC TRAINING AND EXERCISE PHYSIOLOGY</td>
<td>3</td>
<td>Combined Lecture and Lab</td>
<td>Graduate standing.</td>
</tr>
<tr>
<td>EXPH 63051</td>
<td>QUANTITATIVE AND RESEARCH METHODS IN ATHLETIC TRAINING AND EXERCISE PHYSIOLOGY</td>
<td>3</td>
<td>Combined Lecture and Lab</td>
<td>Graduate standing.</td>
</tr>
<tr>
<td>EXPH 63056</td>
<td>RESEARCH SEMINAR</td>
<td>1</td>
<td>Seminar</td>
<td>Graduate standing.</td>
</tr>
<tr>
<td>EXPH 63095</td>
<td>INDIVIDUAL INVESTIGATION IN EXERCISE PHYSIOLOGY</td>
<td>1-3</td>
<td>Individual Investigation</td>
<td>Graduate standing; and special approval.</td>
</tr>
<tr>
<td>EXPH 63096</td>
<td>INDIVIDUAL INVESTIGATION IN EXERCISE PHYSIOLOGY</td>
<td>1-3</td>
<td>Individual Investigation</td>
<td>Graduate standing; and special approval.</td>
</tr>
<tr>
<td>EXPH 63098</td>
<td>RESEARCH</td>
<td>1-15</td>
<td>Research</td>
<td>Graduate standing.</td>
</tr>
</tbody>
</table>

**Grade Mode:**
- **Standard Letter:** Satisfactory/Unsatisfactory
- **Satisfactory/Unsatisfactory**
- **Standard Letter-IP:**
- **IP:** Standard Letter-IP

**Contact Hours:**
- 2 lecture, 2 lab
- 3 lecture
- 3-9 lab
- 1-3 other
- 1 other

**Schedule Type:**
- Combined Lecture and Lab
- Lecture
- Workshop
- Seminar
- Individual Investigation
- Laboratory
- Combined Lecture and Lab
- Seminar
- Individual Investigation
- Lecture
EXPH 63193  VARIABLE TITLE WORKSHOP IN EXERCISE PHYSIOLOGY  
1-3 Credit Hours  
(Repeatable for credit) Workshop in exercise physiology; topics vary.  
Maximum 4 hours applied to the degree.  
Prerequisite: Graduate standing.  
Schedule Type: Workshop  
Contact Hours: 1-3 other  
Grade Mode: Satisfactory/Unsatisfactory  

EXPH 63195  SPECIAL TOPICS IN EXERCISE PHYSIOLOGY  
1-3 Credit Hours  
(Repeatable for credit) (Cross-listed with EXPH 73195) Selected and  
varied topics of relevance in exercise physiology.  
Prerequisite: Graduate standing.  
Schedule Type: Lecture  
Contact Hours: 1-3 lecture  
Grade Mode: Standard Letter  

EXPH 63199  THESIS I  
2-6 Credit Hours  
(Repeatable for credit) Thesis students must register for a total of 6 hours,  
2 to 6 hours in a semester distributed over several semesters if desired.  
Prerequisite: Graduate standing.  
Schedule Type: Masters Thesis  
Contact Hours: 3 other  
Grade Mode: Satisfactory/Unsatisfactory-IP  

EXPH 63299  THESIS II  
2 Credit Hours  
Thesis students must continue registration each semester until all degree  
requirements are met.  
Prerequisite: EXPH 63199; and graduate standing.  
Schedule Type: Masters Thesis  
Contact Hours: 2 other  
Grade Mode: Satisfactory/Unsatisfactory-IP  

EXPH 65075  MUSCLE FUNCTION AND EXERCISE  
3 Credit Hours  
(Cross-listed with EXPH 75075) Characteristics of skeletal muscle related  
to contraction during exercise, strength, elasticity, fatigue, and training.  
Electromyograph analysis of muscle function emphasized.  
Prerequisite: Graduate standing.  
Schedule Type: Lecture  
Contact Hours: 3 lecture  
Grade Mode: Standard Letter  

EXPH 65076  ENVIRONMENTAL STRESS AND EXERCISE  
3 Credit Hours  
(Slashed with EXPH 75076) Effects of heat, cold, pressure, pollution and  
psychological stress upon physiological responses to exercise. Lecture and  
laboratory.  
Prerequisite: Graduate standing.  
Schedule Type: Combined Lecture and Lab  
Contact Hours: 2 lecture, 2 lab  
Grade Mode: Standard Letter  

EXPH 65080  PHYSIOLOGICAL BASIS OF EXERCISE AND SPORT  
3 Credit Hours  
(Cross-listed with EXPH 75080) Application of physiological concepts  
to human performance. Includes role of testing, training strength and  
endurance, nutritional considerations, environmental influences and,  
adapted exercise programs.  
Prerequisite: Graduate standing.  
Schedule Type: Combined Lecture and Lab  
Contact Hours: 2 lecture, 2 lab  
Grade Mode: Standard Letter  

EXPH 65081  ENERGY METABOLISM AND BODY COMPOSITION  
3 Credit Hours  
(Cross-listed with EXPH 75081) Measurement of metabolic response to  
exercise. Topics include ergometry spirometry energy expenditure  
body composition and performance correlates of strength power and  
endurance.  
Prerequisite: Graduate standing.  
Schedule Type: Lecture  
Contact Hours: 3 lecture  
Grade Mode: Standard Letter  

EXPH 65082  CARDIO-RESPIRATORY FUNCTION  
3 Credit Hours  
(Cross-listed with EXPH 75082) Measurement of the cardiovascular-respiratory  
response to exercise. Includes resting spirometry, lung function during exercise, electrocardiography, blood pressure, PWC  
testing and exercise prescription.  
Prerequisite: Graduate standing.  
Schedule Type: Lecture  
Contact Hours: 2 lecture, 2 lab  
Grade Mode: Standard Letter  

EXPH 65083  EXERCISE ENERGY METABOLISM  
3 Credit Hours  
(Cross-listed with EXPH 75083) Energy transformations during exercise.  
Emphasis on controlling mechanisms that regulate the anabolic and  
catabolic responses to both acute and chronic exercise.  
Prerequisite: Graduate standing.  
Schedule Type: Combined Lecture and Lab  
Contact Hours: 2 lecture, 2 lab  
Grade Mode: Standard Letter  

EXPH 65084  CARDIOVASCULAR-RESPIRATORY DYNAMICS DURING EXERCISE  
3 Credit Hours  
(Cross-listed with EXPH 75084) Responses of the cardiovascular and  
respiratory systems to exercise. Use of noninvasive methods to measure  
cardio-respiratory function emphasized. Lecture and laboratory.  
Prerequisite: Graduate standing.  
Schedule Type: Combined Lecture and Lab  
Contact Hours: 2 lecture, 2 lab  
Grade Mode: Standard Letter  

EXPH 65086  NEUROBIOLOGY OF MOVEMENT AND EXERCISE  
3 Credit Hours  
(Cross-listed with EXPH 75086) Provide students with knowledge to  
understand the role of the muscular and nervous systems in human  
movement and exercise. Motor disorders and rehabilitation techniques  
will also be discussed. Lecture and laboratory.  
Prerequisite: Graduate standing.  
Schedule Type: Combined Lecture and Lab  
Contact Hours: 2 lecture, 2 lab  
Grade Mode: Standard Letter  

EXPH 65192  INTERNSHIP IN EXERCISE PHYSIOLOGY  
1-6 Credit Hours  
(Repeatable for a maximum of 8 credit hours) (Cross-listed with EXPH 75192) Field experience in exercise physiology programs and  
testing in Kent State University adult fitness program or cooperating  
agencies.  
Prerequisite: Graduate standing; and special approval.  
Schedule Type: Practicum or Internship  
Contact Hours: 3-18 other  
Grade Mode: Satisfactory/Unsatisfactory-IP
EXPH 70610  PHYSIOLOGY OF AGING: IMPLICATIONS FOR HUMAN BEHAVIOR  3 Credit Hours
(Cross-listed with EXPH 60610) Examine physiological changes which accompany advancing age. Special attention is paid to the effect of these changes on sensory motor and cognitive behavior.
Prerequisite: Doctoral standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

EXPH 73050  RESEARCH PROCESSES IN ATHLETIC TRAINING AND EXERCISE PHYSIOLOGY  3 Credit Hours
(Cross-listed with EXPH 63050) The research process and statistical concepts applied to athletic training and exercise physiology.
Prerequisite: Doctoral standing.
Schedule Type: Combined Lecture and Lab
Contact Hours: 2 lecture, 2 lab
Grade Mode: Standard Letter

EXPH 73051  QUANTITATIVE AND RESEARCH METHODS IN ATHLETIC TRAINING AND EXERCISE PHYSIOLOGY  3 Credit Hours
(Cross-listed with EXPH 63051) Research design and statistical methods applied to exercise physiology and athletic training.
Prerequisite: EXPH 73050; and doctoral standing.
Schedule Type: Combined Lecture and Lab
Contact Hours: 2 lecture, 2 lab
Grade Mode: Standard Letter

EXPH 73052  INDIVIDUAL INVESTIGATION IN EXERCISE PHYSIOLOGY  1-3 Credit Hours
(Repeatable for credit) (Cross-listed with ATTR 63052 and ATTR 73052) Independent student completed under the supervision of a faculty member. Written approval of supervising faculty member and School Director required prior to registration.
Prerequisite: Doctoral standing; and special approval.
Schedule Type: Individual Investigation
Contact Hours: 1-3 other
Grade Mode: Satisfactory/Unsatisfactory

EXPH 73095  RESEARCH SEMINAR  1 Credit Hour
(Repeatable for credit) (Cross-listed with ATTR 63095 and ATTR 73095 and EXPH 63095 and SRM 63095 and SRM 73095) Presentation and discussion of research by faculty and students. A total of 2 credits may be applied toward degree requirements.
Prerequisite: Doctoral standing.
Schedule Type: Seminar
Contact Hours: 1 other
Grade Mode: Satisfactory/Unsatisfactory

EXPH 73096  INDIVIDUAL INVESTIGATION IN EXERCISE PHYSIOLOGY  1-3 Credit Hours
(Repeatable for a maximum of 6 credit hours) (Cross-listed with EXPH 63096) Independent student completed under the supervision of a faculty member. Written approval of supervising faculty member and School Director required prior to registration.
Prerequisite: Doctoral standing; and special approval.
Schedule Type: Individual Investigation
Contact Hours: 1-3 other
Grade Mode: Standard Letter-IP

EXPH 73195  SPECIAL TOPICS IN EXERCISE PHYSIOLOGY  1-3 Credit Hours
(Repeatable for a maximum of 6 credit hours) (Cross-listed with EXPH 63195) Selected and varied topics of relevance in exercise physiology.
Prerequisite: Doctoral standing.
Schedule Type: Lecture
Contact Hours: 1-3 lecture
Grade Mode: Standard Letter

EXPH 75004  BIOMECHANICS  3 Credit Hours
(Cross-listed with ATTR 65004) Survey of biomechanics, with particular emphasis on skeletal muscle mechanics.
Prerequisite: Doctoral standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

EXPH 75075  MUSCLE FUNCTION AND EXERCISE  3 Credit Hours
(Cross-listed with EXPH 65075) Characteristics of skeletal muscle related to contraction during exercise, strength, elasticity, fatigue and training. Electromyograph analysis of muscle function emphasized.
Prerequisite: Doctoral standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

EXPH 75076  ENVIRONMENTAL STRESS AND EXERCISE  3 Credit Hours
(Slashed with EXPH 65076) Effects of heat, cold, pressure, pollution and psychological stress upon physiological responses to exercise. Lecture and laboratory.
Prerequisite: Doctoral standing.
Schedule Type: Combined Lecture and Lab
Contact Hours: 2 lecture, 2 lab
Grade Mode: Standard Letter

EXPH 75080  PHYSIOLOGICAL BASIS OF EXERCISE AND SPORT  3 Credit Hours
(Cross-listed with EXPH 65080) Application of physiological concepts to human performance. Includes role of testing, training, strength and endurance, nutritional considerations, environmental influences, and adapted exercise programs.
Prerequisite: Doctoral standing.
Schedule Type: Combined Lecture and Lab
Contact Hours: 2 lecture, 2 lab
Grade Mode: Standard Letter

EXPH 75081  ENERGY METABOLISM AND BODY COMPOSITION  3 Credit Hours
(Cross-listed with EXPH 65081) Measurement of metabolic response to exercise. Topics include ergometry, spirometry, energy expenditure, body composition and performance correlates of strength, power and endurance.
Prerequisite: Doctoral standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

EXPH 75082  CARDIO-RESPIRATORY FUNCTION  3 Credit Hours
(Cross-listed with EXPH 65082) Measurement of the cardiovascular-respiratory response to exercise. Includes resting spirometry, lung function during exercise, electrocardiography, blood pressure, PWC testing and exercise prescription.
Prerequisite: Doctoral standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter
EXPH 75083 EXERCISE ENERGY METABOLISM 3 Credit Hours
(Cross-listed with EXPH 65083) Energy transformations during exercise. Emphasis on controlling mechanisms that regulate the anabolic and catabolic responses to both acute and chronic exercise.
Prerequisite: Doctoral standing.
Schedule Type: Combined Lecture and Lab
Contact Hours: 2 lecture, 2 lab
Grade Mode: Standard Letter

EXPH 75084 CARDIOVASCULAR-RESPIRATORY DYNAMICS DURING EXERCISE 3 Credit Hours
(Cross-listed with EXPH 65084) Responses of the cardiovascular and respiratory systems to exercise. Use of noninvasive methods to measure cardio-respiratory function emphasized. Lecture and laboratory.
Prerequisite: Doctoral standing.
Schedule Type: Combined Lecture and Lab
Contact Hours: 2 lecture, 2 lab
Grade Mode: Standard Letter

EXPH 75086 NEUROBIOLOGY OF EXERCISE AND MOVEMENT 3 Credit Hours
(Cross-listed with EXPH 65086) Provides students with knowledge to understand the role of the muscular and nervous systems in human movement and exercise. Motor disorders and rehabilitation techniques will also be discussed. Lecture and laboratory.
Prerequisite: Graduate standing.
Schedule Type: Combined Lecture and Lab
Contact Hours: 2 lecture, 2 lab
Grade Mode: Standard Letter

EXPH 75192 INTERNSHIP IN EXERCISE PHYSIOLOGY 1-6 Credit Hours
(Repeatable for a maximum of 8 credit hours) (Cross-listed with EXPH 65192) (Cross-listed with EXPH 65192) Field experience in exercise physiology programs and testing in KSU adult fitness program or cooperating agencies.
Prerequisite: Doctoral standing; and special approval.
Schedule Type: Practicum or Internship
Contact Hours: 3-18 other
Grade Mode: Satisfactory/Unsatisfactory-IP

EXPH 83098 RESEARCH 1-15 Credit Hours
(Repeatable for credit) Research for doctoral students.
Prerequisite: Doctoral standing; and special approval.
Schedule Type: Research
Contact Hours: 1-15 other
Grade Mode: Standard Letter-IP

EXPH 83199 DISSERTATION I 15 Credit Hours
(Repeatable for credit) Continuing registration required of doctoral students who have completed the initial 30 hours of dissertation and continuing until all degree requirements are met.
Prerequisite: EXPH 83199; and doctoral standing.
Schedule Type: Dissertation
Contact Hours: 15 other
Grade Mode: Satisfactory/Unsatisfactory-IP

EXPH 83299 DISSERTATION II 15 Credit Hours
(Repeatable for credit) Continuing registration required of doctoral students who have completed the initial 30 hours of dissertation and continuing until all degree requirements are met.
Prerequisite: EXPH 83199; and doctoral standing.
Schedule Type: Dissertation
Contact Hours: 15 other
Grade Mode: Satisfactory/Unsatisfactory-IP